Risk Assessment and Disaster Management Plan

Proposed Expansion of Integrated Cement Plant-
Clinker (11.2 to 15.0 Million TPA), Cement (8.8 to 13.2 Million TPA), WHRS (68 to 90 MW), CPP (180 MW), Synthetic Gypsum (1560 TPD) & DG Sets (1000 to 2000 KVA)

Near
Village: Ras, Tehsil: Jaitaran, District: Pali (Rajasthan)

M/s. Shree Cement Ltd.
RISK ASSESSMENT AND DISASTER MANAGEMENT PLAN

1.1 Risk Assessment and Damage Control

Risk assessment is the determination of quantitative or qualitative value of risk related to a concrete situation and a recognized threat.

Activities requiring assessment of risk due to occurrence of most probable instances of hazard and accident are both onsite and off-site.

1.2 Hazard Identification and Risk Assessment (HIRA) for Integrated Cement Project

Cement manufacturing industry is labor intensive and uses large scale and potentially hazardous manufacturing processes. The industry experiences accident rates that are high compared with some other manufacturing industries. Cement industries experiences risk of a number of hazards inherent to the cement production process. Following hazards may occur:

- Exposure to High temperatures;
- Physical Hazards;
- Events pertaining to Manufacturing Process;
- Fire;
- Explosion;
- Electrocution;
- Natural and Manmade hazards.

These mainly impact on those working within the industry, although health hazards can also impact on local communities. The potential hazardous areas and the likely accidents with the concerned area have been enlisted below in Table - 1.

Table - 1

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Hazardous Area</th>
<th>Likely Accident</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Boiler Area</td>
<td>Explosion</td>
</tr>
<tr>
<td>2.</td>
<td>Electrical rooms</td>
<td>Fire and electrocution</td>
</tr>
<tr>
<td>3.</td>
<td>Transformer area</td>
<td>Fire and electrocution</td>
</tr>
<tr>
<td>4.</td>
<td>Cable tunnel</td>
<td>Fire and electrocution</td>
</tr>
<tr>
<td>5.</td>
<td>Storage yard</td>
<td>Sliding</td>
</tr>
<tr>
<td>6.</td>
<td>Crushing and grinding unit</td>
<td>Fatal accident</td>
</tr>
<tr>
<td>7.</td>
<td>Chimney</td>
<td>Air pollution</td>
</tr>
<tr>
<td>8.</td>
<td>Coal/ fuel storage area</td>
<td>Fire and spillage</td>
</tr>
<tr>
<td>9.</td>
<td>Turbine room</td>
<td>Explosion</td>
</tr>
</tbody>
</table>
Exposure to High Temperature

The principal exposures to heat in this sector occur during handling of hot raw meal (Powdered limestone, laterite additives etc. heated in a pre-heater cyclone), hot clinker and operation & maintenance of kilns or other hot equipment. Recommended prevention and control techniques include the following:

» Shielding surfaces where worker’s proximity and close contact with hot equipment is expected,
» Using personal protective equipment (PPE), as needed (e.g. insulated gloves and shoes);
» Minimizing the work time required in high temperature environments by implementing shorter shifts at these locations.

Physical Hazards

Injuries during Project operation are typically related to slips, trips, and falls; contact with falling / moving objects; and lifting / over-exertion. Other injuries may occur due to contact with, or capture in, moving machinery (e.g. dump trucks, front loaders, forklifts). Activities related to maintenance of equipment, including crushers, mills, mill separators, fans, coolers, and belt conveyors, represent a significant source of exposure to physical hazards. Such hazards may include the following:

» Falling / impact with objects
» Hot surface burns
» Transportation
» Contact with allergic substances.

Management measures to prevent the physical hazards in the plant

» Any person working on equipment with moving parts will personally ensure the equipment is de-energized, isolated and locked/tagged out.
» Any person working from a position with the potential risk for a fall from height will use fall protection.
» Any person doing flame welding, cutting or brazing in the proximity of any flammable material will obtain PPE.
» Safety helmets to be used to protect workers below against falling material.
» Barriers like a toe boards or mesh guards is to be provided to prevent items from slipping or being knocked off the edge of a structure.
» Danger areas are to be clearly marked with suitable safety signs indicating that access is restricted to essential personnel wearing hard hats while the work is in progress.
In case of any accident immediate and proper medical care shall be provided at the plant site.
Events pertaining to the manufacturing process

The following areas are identified as hazard prone in case of Integrated Cement Plant where disaster management plan is required.

(i) Handling of Coal and Pet coke

1. The coal and pet coke is received through road and railway and stored in Covered Stockpile and wind breaking wall arrangement with arrangement of water sprinkling. The possible hazards are envisaged due to the slipping of wagon during unloading.
2. During summer season, there is chance of coal catching fire due to spontaneous heating.
3. Effective sprinkling systems should be provided all-round the coal storage yards.

(ii) Handling of fine dust

The hot raw meal (Powdered limestone, laterite additives etc. is heated in a multi - stage pre heater cyclone) is stored in the raw meal silos. It is very common that the hot raw meal gets jammed in the chute and screw conveyors. During the maintenance process, the operator generally works in the pre-heater cyclone and other areas. Always there is a possibility of hazard that the jammed material falls on the workers and due to hot temperature of the material, possibility of injury may occur to the worker, sufficient care should be taken in the maintenance operations.

(iii) Handling of Hot Clinker

The hot clinker is transported by chain conveyors to the top of the silo or stock pile for storage. During this operation, there is a possibility of spill out of hot clinker. Proper care for the conveyor system and the bund wall for the clinker stock pile should be provided.

(iv) Handling of Cement

Cement is the fine dust which requires proper care in handling, storage and packing to avoid any health hazards.

Fire

Fire can be observed in the boiler area, Coal storage yard, Fuel spillage, Electrical rooms, Transformer area etc. due to accidental failure scenario.

Explosion

Explosion may lead to release of heat energy and Pressure waves. Table - 2 shows tentative list of damages envisaged due to different heat loads.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Heat loads (kW/m²)</th>
<th>Type of Damage Intensity</th>
<th>Damage to People</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>37.5</td>
<td>Damage to process equipment</td>
<td>100% lethality in 1 min. 1% lethality in 10 sec.</td>
</tr>
<tr>
<td>2</td>
<td>25.0</td>
<td>Minimum energy required to ignite wood</td>
<td>50% Lethality in 1 min. Significant injury in 10 sec.</td>
</tr>
</tbody>
</table>
### Proposed Expansion of Integrated Cement Plant

- Clinker (11.2 to 15.0 Million TPA)
- Cement (8.8 to 13.2 Million TPA)
- WHRS (68 to 90 MW)
- CPP (180 MW)
- Synthetic Gypsum (1560 TPD)
- DG Sets (1000 to 2000 KVA)

Near Village: Ras, Tehsil: Jaitaran, District: Pali (Rajasthan)

### Risk Assessment & Disaster Management Plan

#### Maximum thermal radiation intensity allowed on thermally unprotected equipment

<table>
<thead>
<tr>
<th>Step</th>
<th>Activity</th>
<th>Action By</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>19.0</td>
<td>--</td>
</tr>
</tbody>
</table>

#### Minimum energy required to melt plastic tubing

<table>
<thead>
<tr>
<th>Step</th>
<th>Activity</th>
<th>Action By</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>12.5</td>
<td>1% lethality in 1 min</td>
</tr>
</tbody>
</table>

#### First degree burns, causes pain for exposure longer than 10 sec.

<table>
<thead>
<tr>
<th>Step</th>
<th>Activity</th>
<th>Action By</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4.0</td>
<td>--</td>
</tr>
</tbody>
</table>

#### Causes no discomfort on long exposures

<table>
<thead>
<tr>
<th>Step</th>
<th>Activity</th>
<th>Action By</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>1.6</td>
<td>--</td>
</tr>
</tbody>
</table>

### Source:


### Electrocution

Fatal Accident due to carelessness during working hours may lead to electrocution. Probable areas where chances prevail are enlisted in Table - 2.

### Natural and Manmade Calamities which can lead to Emergency

(a) **Earthquake**

The Pali District area falls under the seismic zone-II, which is the low risk quake and may trigger into a technological disaster, includes collapse of old structures, buildings leading to fire and explosion. Earthquake cannot usually be forecasted and therefore precautions immediately prior to such event are not usually possible. Apart from some of the counter-measures to be taken in foreseeable cases, emergency recovery plan has been considered by the emergency management team as per the situation and site conditions as follows:

<table>
<thead>
<tr>
<th>Step</th>
<th>Activity</th>
<th>Action By</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Identify and constitute Emergency Response Team</td>
<td>Plant Key Person</td>
</tr>
<tr>
<td></td>
<td>Identify ECC, if the identified ones are damaged</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control centers to be equipped with</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Communication facilities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Emergency vehicles/equipment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>List of emergency contacts and suppliers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medical facilities</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step</th>
<th>Activity</th>
<th>Action By</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Do not panic. Raise alarm</td>
<td>Individual(s)</td>
</tr>
<tr>
<td></td>
<td>Avoid standing near to windows, external walls</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stand near the columns or duck under sturdy furniture.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assemble at emergency assembly point as there may be aftershocks</td>
<td></td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Step</th>
<th>Activity</th>
<th>Action By</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Take head count</td>
<td>Site Incident Controller Site Main Controller</td>
</tr>
<tr>
<td></td>
<td>Activate emergency plan as situation demands</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assess situation and initiate shut down of plants (if required)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Initiate search and rescue (if required)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Provide first aid to victims. Remove casualties</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Key persons to report to site</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assess damage</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Undertake</td>
<td></td>
</tr>
</tbody>
</table>

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<td></td>
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<td></td>
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<td></td>
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<td></td>
<td>Undertake</td>
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</tr>
<tr>
<td></td>
<td>Assess damage</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Undertake</td>
<td></td>
</tr>
</tbody>
</table>
(b) **Storm**

The contingency actions during storm shall be based on the weather forecasts obtained from meteorological stations and the local meteorological department. Some of the important actions to be carried out are as follows:

**Prior to Storm**
- Establish regular contact with the local meteorological department.
- Establish distances from storm in order to execute preparatory actions in a shorter time.
- Appraise the factory operations / installations and consider the consequences that the emergency might have on operations and personnel.
- Check the availability of tools, batteries, non-perishable foods and other materials that might be required.
- Review all operations carefully to ensure that systems in jeopardy are taken care of or shut down.
- Ensure the readiness of first aiders, emergency vehicles, medical centre, medicines etc.
- Metallic sheets, loose materials, empty drums and other light objects shall be properly secured.
- Flush the drainage systems.

**During Storm**
- Remain calm.
- Do not go outdoors.
- Do not seal the office completely as the suction created by the difference in atmospheric pressure inside and outside can rip open a window or door by breaking window glass panes.

**After the Storm**
- Do not touch electric lines.
- Stay away from the disaster area.
- Take special precautions in driving vehicles since the under-pavement could cave in due to the weight of automobile.

(c) **Flood**

Though flood in this region is rare by virtue of its location from rivers and dams. The HFL alarm should be provided. During rainy season nallah should be monitored by the supervisors in all shifts.

(d) **Air Raid**

Air raid warning would be obtained from the District Emergency Authority or Defense Authorities, during which total blackout of the entire complex should be considered. Some of the contingency actions to be considered during an air raid are as follows:
- The Aviation Lights installed on highest point inside the factory should be switched off.
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- All the lighting on the Streets should be put off
- All the plant lighting should be put off
- Brown curtains shall be provided for all windows inside the building
- Other emergency actions should be followed in addition as per the general procedure

(e) Bomb Threat

In view of the probable acts of terrorism, the possibility of receiving bomb threats or the sabotage cannot be ruled out. Therefore, consider all bomb threats as genuine and act accordingly keeping in mind the safety of the people in the factory and the property. For such situation, the security people should take action under the guidance of the Section Head (Security). The Bomb threats may be received in writing or may be received on phone. The expected actions by telephone receiver are as follows:

- Keep the caller on the line as long as possible. Request him to repeat the message, listen carefully as every word spoken by the person has to be recorded mentally or penned down.
- If the caller does not indicate the location of the bomb or the time of possible detonation, it is advisable to try to ask him for this information.
- Pay particular attention to peculiar background noises such as motors running, background music and any other noise, which may give a clue as to from where the call is being made.
- Listen closely to the voice (male, female), voice quality (calm, excited), accents and speech impediments. Immediately after the caller hangs up, report should be made to the immediate senior manager or security officer on duty about all the above details.
- In consultation with SMC, the Legal-Coordinator can immediately inform the nearest Police station over phone and also Bomb diffusion squad.
- If the location is identified, cordon-off the area and ask people to leave the area and assemble at designated assembly point.
- During strikes police will be informed by the Legal-Coordinator in advance and taken their help to maintain law and order.

(f) Food and Water Poisoning

Food and water poisoning to a no of persons, due to canteen food or other means, is another scenario which can leads to major emergency. In this case Medical Officer should be informed immediately by the Sr. most person available at site and then to incident Controller(IC) and Site Main Controller (SMC). In such situation doctors should act and if situation demands additional help such as ambulances, doctors and medicine should be arranged from nearby factories and hospitals. For such situations SMC may decide whether siren is required to blow or not and arrange to inform key persons in the factory and if required set up Emergency Control Centre (ECC) at Hospital. Functional Head (FH) of HR should rush to ECC and assist SMC for informing nearby hospitals, doctors and govt. authorities in consultation with the doctor. Plan to deal with food and water poisoning can be divided in following stages.
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**Risk Assessment & Disaster Management Plan**

**Step** | **Activity** | **Action By**
---|---|---
Planning and Preparedness | • Maintain adequate inventory/supply of medicines, saline water etc. and identify resources to obtain during emergency  
• Impart awareness training regarding food/water poisoning | Medical Coordinator

Action during effective Period (Establish Emergency Control Center. Site Main Controller to direct all activities) | • Identify the contaminant source  
• Seize contaminated material and keep out of circulation  
• Take preventive measures for avoiding recurrence  
• Inform all concerned  
• Arrange to analyze samples  
• Arrange alternate supplies  
• Arrange medical assistance to the victims  
• Mobilize assistance from outside (if necessary) | Site Main Controller, Medical coordinator and QC person

Action after effective period | • Conduct detailed epidemiological investigation to identify the cause of contamination  
• Take appropriate preventive measures to avoid recurrence  
• Follow up on causalities | Site Main Controller, Medical coordinator, and FH (HR)

**High Risk Categories and Preventive Measures**

High Risk Categories and Preventive Measures are given in Table - 3.

**Table - 3**

<table>
<thead>
<tr>
<th>High Risk Categories</th>
<th>Prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contractors</td>
<td>Contractor Safety Management</td>
</tr>
<tr>
<td>Young/Temporary Employees</td>
<td>Special Safety Induction Training</td>
</tr>
</tbody>
</table>

**Direct Causes**

| Traffic & Mobile Plant | Driver Training |
| Falls from Heights, Objects falling from Heights | Safety Procedures for Work at Heights, Overhead Protection |
| Caught in Starting/Moving Equipment | Plant Isolation Procedures |

**1.3 Measures for Occupational Health Hazards**

- Dust Exposure level of shop floor workers is to be appropriately monitored.
- Check of the effectiveness of preventive and control measures on regular basis.
- Adequate supplies of potable drinking water are to be provided. Water supplied to areas of Plant food preparation or for the purpose of personal hygiene (washing or bathing) should be according to drinking water quality standards.
Where there is potential for exposure to harmful dusts by ingestion arrangements are to be made for clean eating areas, where workers are not exposed to the hazardous or noxious substances.

- Periodic medical hearing checks are to be performed on workers exposed to high noise levels.

- Provisions are to be made to provide OHS orientation training to all new employees to ensure they are apprised of the basic site rules of work at/on the site and of personal protection and preventing injury to fellow employees.

- Contractors that have the technical capability to manage the occupational health and safety issues of their employees are to be hired, extending the application of the hazard management activities through formal procurement agreements.

- Ambulances and First aid treatment facilities are made available for any emergency situation.

1.4 Disaster Management Plan

**Definition**

A major emergency in a work is one, which has the potential 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.

**Scope**

This emergency plan and its associated emergency response procedures have been established to provide direction to personnel in managing an emergency condition, to ensure the reduction of impact on environment, health and safety of employees and the visitors.

**Objective**

This emergency plan establishes the concept of operations for:

a) An assessment of the emergency condition

b) Timely and effective mitigation of the emergency condition
c) Management of emergency response activities
d) Notifications to facility personnel and off-site personnel and organization
e) Recovery from the emergency condition

Elimination will require prompt action by operations and works emergency staff using, for example, fire-fighting equipment, water sprays etc. Minimizing the effects may include rescue, first aid, evacuation, rehabilitation and giving information promptly to people living nearby. To deal with the above emergencies, the Emergency Plan is prepared.

**Emergencies**

(a) **Stores**

Possible Emergency: Possibility of catching fire in stores materials
Preventive Measures
Suitable fire extinguishers, fire hydrant system and fire buckets is being/ will be provided for fighting the fire during emergency. Stores staff is being/ will be imparted the training for first aid firefighting to prevent/extinguish the fire at initial stage.

(b) Oil Storage Tank - HSD Underground Tank
Possible Emergency: Possibility of catching fire at the oil storage tanks and fuel oil handling system and Oil spillage from storage tanks.

Preventive Measures
Area is being/ will be declared as fire hazards area as "No Smoking and No Naked Flame Zone". Suitable fire extinguishers and fire hydrant system is being/ will be provided at the tank enclosure area and inside the pump room. Regular scheduled inspections of storage tank and the enclosed area is being/ will be carried out by the custodian with regard to proper earthing, presence of any combustible material or growth of wild vegetation, no breaches in the wire fencing, damage in the dyke wall etc.

No naked flames are being/ will be allowed in and around fuel oil storage areas, if required for gas cutting/welding job for maintenance of the plant or machinery, a PTW is being/ will be taken for hot work with all proper safety precautions.

Unloading of petroleum in bulk will not allowed between sunset and sunrise. Tanker engine is being/ will be switched off before unloading and the tanker is being/ will be earthed.

Dyke walls is being/ will be provided to prevent over flow/spillage of oil, Oil separation pit is being/ will be provided to prevent oil missing with the water drains.

All requirements and conditions of the Explosives License applied under the Petroleum Act, 1934 & Petroleum Rules, 2002 (with latest amendments are implemented in the HSD storage area.

(c) Packing Plant
Possible Emergency: Possibility of catching fire in the bag godown.

Preventive Measures
Declared as "No Smoking or Fire" area.

Suitable fire extinguishers and fire hydrant systems is being/ will be provided for firefighting in emergency situation.

Permit to work for hot work is being/ will be taken for any welding/gas cutting in that area.

Adequate drainage to immediately drain out the water used in firefighting is being/ will be provided to avoid water damage. The sheds are being/ will be properly ventilated.

(d) Silos
Possible Emergency: Collapse of silos
Hazards: Dust emission, material spillage & injury to person & damage to other property
Preventive Measures

• Structural soundness of silos
• To avoid over filing of silos (not to fill the silos up to the brim, not to keep silos too empty to avoid structural damages)
• Install lighting arrester at top of the silos bucket elevator

(e) Electrical Transformer

Possible Emergency: Catching fire in transformers

Preventive Measures

• Predictive interlocks are being/ will be provided which will automatically give an alarm/trip the system.
• In case oil pressure inside the transformer tank increases, buchholtz relay provided will sound an alarm and if necessary will trip the transformer and thus avoid oil explosion.
• A diaphragm is being/ will be provided at the bottom of explosion vent to vent out high oil pressure whenever pressure is increased beyond limit.
• Fire extinguishers and sand buckets is being/ will be provided in the transformer room for firefighting due to explosion or during an emergency.

(f) Transformer Yard and HT/LT Sub-Station

Possible Emergency: Possibility of fire and explosion

Preventive Measures

All transformers are being/ will be separated by brick wall up to the height of transformer. Soak pits of suitable capacity is being/ will be provided to collect the leaked transformer oil in case of fire and explosion.

• Periodic maintenance of all electrical machinery apparatus is being/ will be utmost importance.
• Soundness of insulation, proper ventilation and earthing arrangements is being/ will be checked regularly by dept.
• Person certified by HOD.
• In case of fire in HT transformer, first of all switch off 33/132 kV incomer breaker.
• In case of LT transformer fire/explosion, switch off the transformer feeder from HT line.
• Inform emergency control room for fire brigade and other actions.

(g) Electrical Cable Tunnels

Possible Emergency: Catching fire in electrical cables inside the tunnels

Preventive Measures

Suitable fire extinguishers are being/ will be provided for fire provided for firefighting. Overall good housekeeping is being/ will be maintained to avoid any fire risk. Exhaust fan provided to avoid any suffocation.
(h) Conveyor Belts

Possible Emergency: Catching of fire in conveyors

The main cause for conveyor fire are
- Gas cutting/welding
- Frictional heat

Preventive Measures:
- Suitable fire extinguishers are being/will be provided for each transfer towers for firefighting during emergency
- Full cord system is being/will be provided throughout. its length to stop it in any emergency
- Preventive checks on frictional parts like drum and lagging of drum are done
- Suitable fire equipment is being/will be kept at hand during gas cutting/welding

(i) Failure of Lifting Tools & Tackles and Pressure Vessels

Possible Emergency: Injury to person and damage to equipment

Preventive Measures:
- All lifting tools and tackles and pressure vessels is being/will be tested/examined by competent person authorized by chief inspector of factories, Govt. of Chhattisgarh as per statutory requirement and at defined frequency.
- Safe working pressure range is being/will be maintained in the Air receiver tank/pressure vessels.
- Safe Working Load will not be violated while using cranes, hoists, ropes, chains and other lifting tools and tackles, only authorized personnel is being/will be allowed to handle the same.
- Regular and periodic maintenance is being/will be done

(j) Oil Tanker

Possible Emergency: Toppling of Oil Tankers

Preventive Measures:
- Speed limit signboards is being/will be displayed, no vehicle is being/will be allowed to move beyond 20 km/hr.
- In case oil is toppled Plant Inventory dept is being/will be informed.
- Spray sand on the oil to prevent further spread of oil and oil soaked sand is being/will be collected to fill in the land and cover with soil.

(k) Working at Height

Possible Emergency: Fall from Height

Preventive Measures:
- While working at height preventive measure to be taken as per procedure working at height.
In Case of Emergency:

- Inform immediately to Emergency Control Room/ OHC.
- Inform immediately to the Job Execution In-charge
- If a person falls from height and hanging try to immediately provide him any additional support and arrange for rescue operation by proper available tools ASAP (rope, ladder, and man basket with crane etc). Stop the job immediately.
- Rescue team member will rush at site with rescue kit.
- Emergency team to act as per Emergency organization structure.
- Rescuers to access the probable risk for rescuing the victim.
- Rescuer has to use double fall protection as precaution (One rope grab fall arrestor/ Winch fall arrestor and another is descender).
- Rescuer to use PN 56 model full body safety harness for rescue operation
- Victim is being/ will be rescued by trained rescuer only.

(l) Stock Pile and Surge Pile

Possible Emergency: Engagement in Stockpile (Gypsum, Lime)

Preventive Measures:

- Take permission before climbing on stock pile
- Pedestrian to maintain a safe distance from stock pile
- Person to work under close supervision

In case of Emergency:

- Inform immediately to Emergency Control Room / OHC.
- Inform immediately to the Job Execution In-charge
- If a person buried under stockpiles
- Stop the job immediately and related equipment by pushing emergency button if applicable.
- Cordon off the affected area
- Take out the material with the help of section in-charge
- Rescue the affected persons and send to hospital

(m) Fire/Explosion

Possible Emergency: Fire/Explosion in any plant and offices area

Preventive Measures: In the event of fire wherever available; the local fire alarm signal is being/ will be activated. The fire alarm can be initiated by activation of one of the following systems:

- Break glass Alarm Systems
- Fire Detection Systems, i.e. Smoke Doctors

1.4.1 Onsite Emergency Plan

The onsite emergency management of Shree Cements Ltd. is given here, as the same will be applied in case of proposed expansion.
Disaster control Management system

The Availability, Organization, and Utilization of Resources for Facility Emergencies

In order to maintain an emergency response capability, certain facilities must be kept in a state of readiness, and sufficient supplies and equipment must be available. In some cases, it may be impossible to maintain all of the equipment necessary for all possible emergencies. In these cases, mutual aid agreements have to be made with neighboring facilities to provide additional support as necessary. Where the local fire brigade, police or private agencies be called upon, notification and activation of these organizations are carried out. The reminder of this section is dedicated to the plant emergency facilities, equipment, and supplies. Following emergency can be classified according to its use during the response operations:

- Emergency Control Center (ECC)
- Communication equipment
- Alarm systems
- Personal protection equipment
- Firefighting facilities, equipment and supplies
- Medical facilities, equipment, and supplies
- Transportation system
- Security
- Assembly Point

Emergency Control Centre (ECC)

An Emergency control Centre (ECC) is established from which emergency operations are directed and coordinated. This centre is activated as soon as an onsite Emergency is declared. In Shree Cement Ltd. ECC is located at security main gate. The ECC consist of one room, located in the area that offers minimal risk being directly exposed to possible accidents.

During an emergency, emergency management staff, including the main controller will gather in the ECC. Therefore, the ECC is equipped with adequate communication systems in the form of telephones and other equipment to allow unhampered communication with the teams involved in bringing the accident under control and with the external response organization and other nearby facility personnel. The ECC communication systems are protected from possible shut down. The ECC has its own emergency lighting arrangement and electric communication systems operation. We have one alternate arrangement of ECC in the office of P&A Head.

The ECC is always ready for operation and provided with the equipment and supplies necessary during the emergency such as:

- Updated copies of the On-site Disaster Management Plan
- Emergency telephone numbers
- The names, phone numbers of external agencies, response organizations and neighboring facilities
The List of key personnel
- The adequate number of telephones (more than two)
- Emergency lights
- List of fire extinguishers with their type no. and location, capacity etc.
- List of Personal protective equipment
- Clock
- Status boards / message boards

Several maps of the facility for surrounding area showing:
- Areas where hazardous materials are stored.
- Plot plans of storage tanks, routes of pipelines, and all water permanent lines etc.
- The locations where personal protective equipment are stored.
- The position of pumping stations and other water sources with hydrant lines.
- Roads and plant entrances
- Assembly Points in the plant.

**Communication Equipment and Alarm Systems**

This kind of equipment is absolutely vital for notifying accident; make the emergency known both inside and outside of the facility, and coordinating, the response actions among the various groups involved in response operations. Different communications systems can vary in effectiveness, depending on the task. The most common types installed in the plant are given below.

- Sirens
- Personal Protective Equipment
- Fire Fighting Facilities, Equipment and Supplies
- Medical Facilities, Equipment and Supplies
- Media Centre
- Transportation Systems
- Security and Access Control Equipment

**Location of “Assembly Point”:**

The Assembly Point are the places where the staff other than the emergency response team and unaffected personnel can collected safely as these areas are located in Risk Free Zone. The facilities have been provided near Time Office, Mines Gate & Dispensary.

**Roles and Responsibility**

**Site Controller**

The Functional/ Technical head shall have overall responsibility for the factory and its personnel. In absence of functional/ technical head, his immediate sub-ordinate shall resume the responsibility of Site Controller. His duties during emergency shall be:

- To assess the magnitude of the situation and decide if employees need to be evacuated for assembly point(s).
To maintain continuous review of possible development and assess in consultation with incident controller as to whether the shutting down of the plant or part of the plant and evacuation of person is required.

To give necessary instructions to liaison officer HOD (P & A) regarding the help to be obtained from outside agencies like fire-brigade, Police and medical.

To advice liaising officer to pass-on necessary information about the incident to News, Media and ensure that the evidences are preserved for inquiries to be conducted by statutory authorities.

Instruct Head (P & A) to head count through time office if necessary.

Arrange for relief of personnel when emergency is prolonged.

Authorize the sounding of the “All Clear” siren, which will be one continuous long siren for one minute.

Incident Controller (HOD of the affected section)

The HOD of affected department shall have overall responsibility controlling the incident/emergency and directing the personnel(s). In absence of incident controller his immediate subordinate shall resume the responsibility. His duties during emergency shall be:

To act as site controller till site controller arrives.

Proceed to the scene of emergency and assess the situation. Activate the disaster management plan in consultation with Site Controller.

To inform communication officer about the emergency, control center and direct the personnel of his department to reach at assembly point if necessary.

To direct all operations within the affected areas with priorities for safety personnel(s), to minimize the loss to plant, environment and personnel(s).

To provide advice and information to fire squad, security officer and local fire services when they arrive.

Co-ordinate with the Head (P & A) for any help from outside agencies if required.

Arrange for rescue of trapped workers and those in a state of shock.

Report / communicate all developments to the Site Controller.

Preserve all evidence for use in the subsequent inquiry.

Primary Controller:

The Primary Controller is the employee who gives the first information about the incident/accident. He will responsible for:

To inform office at main gate, his superior of section about the incident/accident by verbal / by phone.

To assist fire brigade in its operation and would assist in clearing any obstruction coming in the way of firefighting.

To assist rescue team to control the situation if required.

To carry out all instructions received from incident controller.
**Liaison Officer (HOD P & A)**

HOD (P & A) shall be the liaison officer. He shall be responsible for:

- Proceed immediately to the Emergency Control Centre.
- Also work as a liaison officer during the emergency.
- To contact outside Fire brigade, Police and medical facilities on receiving intimation from site controller and arrange for the rescue operation.
- To ensure that the casualties receive attention.
- To inform the relatives of the affected employee(s) at the earliest.
- To arrange additional transport if required.
- To arrange for relief of personnel and organized refreshment/ catering facility in case the duration of emergency is prolonged.
- To issue authorized statements to news media and ensure that evidence is preserved for inquiries to be conducted by statutory authorities.
- To inform communication officer about the emergency, control center and Assembly point.
- To ensure that all non-essential persons are sent to the assembly points.
- Produce the list of facility staff on duty and visitors at the premises.

**Communication Officer**

Incharge internal telephone office shall be the communication officer. He will be responsible for:

- To communicate correct information about the incident/ accident.
- To give priority of incident/ accident for communication.

**HOD (Security)**

HOD security/ his next sub-ordinate (in absence of HOD security) will be responsible for:

- Ensure provision of all applicable measures in affected area.
- Ensure entry restriction in affected area.
- Control of transportation in affected area.
- Control traffic into the facility and ensure that alternate transport is available when need arises and ensure free access is available for temporary casualties.
- Check the availability of emergency Fire Fighting equipment in the security department and various sections in the plant and make up for shortages time to time.
- Arrange the required for handling critical situations during the emergency.
- Co-ordinate with the Site /Incident Controller and assume overall responsibilty of the firefighting operations and other related activities.
- Advice the Main Controller if additional fire tender/ firefighting equipment/ material/ aid from other agencies is required.
Arrange to close the entire visitor/other gates.
Ensure that unauthorized persons / vehicles do not enter the facility.
Provide personnel for firefighting and rescue.
Prevent overcrowding at the scene of the incident.

**Medical Coordinator**

On hearing the emergency siren or getting the information about emergency he shall immediately perform following duties.

> To attend and provide first-aid to the injured person(s) on priority.
> To shift injured person at the earliest to nearby Hospital, if found necessary.
> To depute dispensary staff in affected area for first-aid if found necessary for ensuring immediate medical attention.
> Inform all the nearby hospitals of the situation and apprise them of the antidotes that would be necessary for treatment, if any.
> Ensure that records of blood group of all employees are easily accessible if required.

**Safety Office**

He shall be responsible for:

> Rush to the Emergency site.
> Monitoring of incident / emergency.
> Arrangement of safety appliances.
> Advice for provision of all applicable measures in affected area.
> Keeping watch of the rescue operation and all other activities and guide them accordingly.
> Conduct mock drill.

**Rescue Team**

SCL has a rescue team in plant consisting of ten employees from different department. They will reach to affected site and act as instruction of site controller/ incident controller. Inspite of that they will be responsible for:

> Rescue the person from the affected area and provide first aid to the injured due to fire.
> Assist for rushing casualties to hospitals and report details of casualties to Main Controller.
> Act as runners if required.
> Evacuate non-essential personnel and visitors to safe assembly areas.

**Fire Fighting Team**

SCL has a Fire Fighting team in our plant consisting of seven employees from security department. They will reach to affected site and act as instruction of site controller/ incident controller/ HOD security.
Others

Services and Control

SCL has three types of communication systems.

- Alarm which is installed at the top of pre-heater U-IV.
- Public address system is operated with battery and available with security department. In case of power failure, we may use this public address system in emergency.
- Runner may be used in case of all above system become fail.

1.4.2 Emergency Communication

Once the Disaster Management Plan is activated, the Liaison Officer maintains co-ordination with external agencies from the ECC if required. The co-ordination with external response teams at the scene of the accident is maintained through the Incident Controller, who is in direct contact with the ECC.

Emergency Response Actions

This element of emergency plan deals with the actual actions that should be implemented by personnel in the various functions during the emergency. As and when any emergency happens in the plant, the same is recorded. The emergency is categorized. The records of the response time by responsible personnel, Safety Officer also maintain mitigating the impact of hazardous conditions. The damage caused by such conditions is reviewed and recorded. The response time and damages are reviewed in the Management Review Meeting and the suitable corrective actions (e.g. Training of Personnel; increase of resources; change in documentation and any flaw observed in execution of the plan) are taken. The corrective actions are verified by Mock Drills which is conducted six monthly. The Operational Procedures outline the actions to be taken by personnel in the various functions or individuals within the organization in response to the possible emergency situations envisaged in the hazard evaluation and risk analysis study.

The views of the possible hazards that can arise out of the daily operations in the plant various measures are adopted to prevent the occurrence of a major accident. This comprises of:

a) Built in safety measures, alarms, trips and interlocks etc.

b) Standard safe operating and maintenance procedures permit system etc.

c) Training of all the involved staff in normal and emergency operating procedures.

d) Training of all employees in safety, firefighting and first aid.

However, in spite of these precautions, it is required to foresee situation of major accident and plan for taking timely action to minimize the effects of such incident on the safety and health of persons working in the plant as well as those situated around the premises. Hence the present plant is drawn up to serve as the manual of handling major emergencies.

Internal telephone systems are provided at work places. Shift in charge at site and other in charge also given on call handset (Walkie Talkie) for immediate communication to all concerned. The shift in charge /Site in charge will immediately inform department Head / in-charge, security and...
dispensary (if required). The department head in charge will inform Vice president and factory manager who according to severity of emergency will inform about the emergency to Senior President.

**Onsite emergency planning for Cement plant**

Following onsite measures are being / will be taken to avoid/ minimize the risk of accidents & other hazards in cement plant and power plant:

(i) **Alarm and Communication Systems**

Communication is crucial factor in handling an emergency. It is the practice at many plants that any employee can raise an emergency alarm, so allowing the earliest possible action to be taken to control the situation.

Raising the alarm is the first step in the implementation of the emergency Plan. It is the practice that in case of any emergency the person who has seen the incident first may inform to security and after verification the security at main gate will raise the alarm as direction given below:

A. For an emergency -
   - Siren - short, intermittent siren.
   - 15 second ON and 5 second OFF for five times

B. All clear
   - Long continuous siren lasting 1.5 minute.

(ii) **Fire-fighting System**

In view of vulnerability to fire, effective measures will be taken to minimize fire hazard. Fire protection is envisaged through hydrant and sprinkler system, designed as per the recommendation of Tariff Advisory Committee of Insurance Association of India. The following areas in the power station are mainly susceptible to fire:

- Cable galleries
- Electrical switchgear/ MCC room
- Coal handling areas: Conveyors, transfer points, tunnels and storage yard.
- Transformers and turbine oil tank

For containment of fire and preventing it from spreading in cable galleries, section wise fire barriers with self - closing fire resistant doors will be provided. The ventilation systems, if any, provided in cable galleries will be interlocked with the fire alarm system, so that in event of a fire, the ventilation system will be automatically switched off. In order to avoid spreading of fire all cable entries opening in cable galleries, tunnels, channels, floors, barriers etc will be sealed with non-inflammable/Fire resistant sealing materials.

For detection and protection of the plant against fire hazard, any one or a combination of the following systems will protect susceptible areas:

- Hydrant system.
- Automatic high velocity spray system
Medium velocity spray system
Portable fire extinguishers
Fire alarm systems

Fire hydrant points have been provided throughout the premises. Automatic high velocity spray system has been provided for protection of transformers and cable galleries. Manual medium velocity spray system has been provided for protection of fuel oil and turbine oil storage tanks and coal conveyor galleries.

Water for hydrant, spray and sprinkler system has been supplied from the firewater pumps located in firewater pump house adjacent to Raw Water Reservoir. Portable fire extinguishers of appropriate types and adequate capacities have been distributed all over the plant to enable employees in fighting fires in their incident stages. These include Dry chemical powder (DCP), Foam, CO2, ABC and fire bucket.

- Total number of portable fire extinguisher - 773,
- Total no. of fire sand bucket - 158
- Water monitors - 6.

Table - 4 and Table - 5 enlist case and Site Specific Fire extinguishers respectively.

### Table - 4

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Chemical Name</th>
<th>Type of Extinguisher</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Coke</td>
<td>Use: Water fog, CO2, Foam, Dry Chemical</td>
</tr>
<tr>
<td>2</td>
<td>Fuel Oil</td>
<td>Use: Water spray, foam, dry powder or carbon dioxide&lt;br&gt;Do Not Use: water jet as an extinguisher, as this will spread the fire</td>
</tr>
<tr>
<td>3</td>
<td>HSD</td>
<td>Use: Foam, Carbon dioxide, Dry Chemical Powder. Water may be used to cool fire-exposed containers</td>
</tr>
<tr>
<td>4</td>
<td>LDO</td>
<td>Use: water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames</td>
</tr>
<tr>
<td>5</td>
<td>Fly Ash</td>
<td>Non Flammable</td>
</tr>
<tr>
<td>6</td>
<td>Gypsum</td>
<td>Non Flammable</td>
</tr>
<tr>
<td>7</td>
<td>Laterite</td>
<td>Non Flammable</td>
</tr>
<tr>
<td>8</td>
<td>Metal dust</td>
<td>Certified class D Extinguishing agent</td>
</tr>
</tbody>
</table>

### Table - 5

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Name of site</th>
<th>Type of Extinguisher</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cable galleries</td>
<td>CO2 &amp; Foam type, Dry chemical powder</td>
</tr>
<tr>
<td>2</td>
<td>High voltage panel</td>
<td>CO2 &amp; Foam type, Dry chemical powder</td>
</tr>
<tr>
<td>3</td>
<td>Control rooms</td>
<td>CO2 &amp; Foam type, Dry chemical powder</td>
</tr>
<tr>
<td>4</td>
<td>MCC rooms</td>
<td>CO2 &amp; Foam type, Dry chemical powder</td>
</tr>
<tr>
<td>5</td>
<td>Pump Houses</td>
<td>CO2 &amp; Foam type, Dry chemical powder</td>
</tr>
<tr>
<td>6</td>
<td>Guest houses and offices</td>
<td>Dry chemical powder, Foam type</td>
</tr>
</tbody>
</table>
(iii) **Evacuation Procedure**

As the major hazard is only due to fire, which has more or less localized impact no mass evacuation, procedures are required. Evacuation would involve only the people working very close to the fire area.

(iv) **First Aid and Dispensary (In House Facilities)**

A well-equipped dispensary is available with Shree Cement Ltd., Ras with two full time doctors and supporting paramedical staff. The dispensary operates round the clock and is equipped with four indoor beds and other required facilities. First aid boxes are kept in the plant at various locations where employees are using these facilities as and when they required.

(v) **Safety**

The safety wing led by a Safety officer will meet the requirement of emergencies round the clock. The required safety appliances shall be distributed at different locations of the plant to meet any eventualities. Poster/placards reflecting safety awareness will be placed at different locations in the plant area.

(vi) **Head Count**

An up-to-date Daily Report of employees and contractor workers within the factory premises is maintained by our Labor contract office / Time Office, which is located at the factory main gate. Record of arrival and departure of visitors is also maintained by Security Dept. at the Gate Office. In case of Emergency, these records will be helpful for counting the evacuated persons from plant.

(vii) **Emergency Training and Exercises**

Drills and exercises constitute the second basic component of disaster management. They both refer to a re-enactment, under the assumption of a mock scenario, of the implementation of the response actions to be taken during an emergency. The emergency response plans and emergency preparedness level would be tested through the following drills:

- a. Table-top exercise (TTE)
- b. Functional exercise (FE)
- c. Full-scale exercise (FSE)

All elements/procedures of the On-Site Emergency Plan would be first tested through TTE and perfected to the extent possible. The Plan then would be modified/updated. Functional Exercises basically to ensure proper functioning of various equipment such as the fire-fighting equipment and the fire hydrant system. The Full-Scale Drill would be conducted to know the level of preparedness of all teams. Initially, TTE and FE would be conducted periodically.
The following drills are conducted periodically:

a. Plant Emergency Drill for fire
b. Fire Drills at offices and admin building
c. Plant Emergency Drills (fire scenario involving evacuation)

vii) **Personal Protective Equipments (PPEs)**

Personal protective equipments play a vital role in overcoming major disastrous situation saving life during onsite emergency. List of recommended Personal Protective equipment (PPE) is given below in Table - 6.

### Table - 6

**Summary of Recommended Personal Protective Equipment according to hazard onsite**

<table>
<thead>
<tr>
<th>Objective</th>
<th>Workplace Hazards</th>
<th>Suggested PPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye and face protection</td>
<td>Flying particles, molten metal, liquid chemicals, gases or vapors, light radiation</td>
<td>Safety glasses with side-shields, protective shades, etc.</td>
</tr>
<tr>
<td>Head protection</td>
<td>Falling objects, inadequate height clearance, and overhead power cords</td>
<td>Plastic helmets with top and side impact protection</td>
</tr>
<tr>
<td>Hearing protection</td>
<td>Noise, ultra-sound</td>
<td>Hearing protectors (ear plugs or ear muffs)</td>
</tr>
<tr>
<td>Foot protection</td>
<td>Failing or rolling objects, points objects. Corrosive or hot liquids</td>
<td>Safety shoes and boots for protection against moving and failing objects, liquids and chemicals</td>
</tr>
<tr>
<td>Hand protection</td>
<td>Hazardous materials, cuts or lacerations, vibrations, extreme temperatures</td>
<td>Gloves made of rubber or synthetic material (Neoprene), leather, steel, insulation materials, etc.</td>
</tr>
<tr>
<td>Respiratory protection</td>
<td>Dust, fogs, fumes, mists, gases, smokes, vapors</td>
<td>Facemasks with appropriate filters for dust removal and air purification</td>
</tr>
<tr>
<td>Body/ leg protection</td>
<td>Extreme temperatures, hazardous materials, cutting and laceration</td>
<td>Insulating clothing, body suits, aprons etc. of appropriate materials</td>
</tr>
<tr>
<td>Fly Ash</td>
<td>Fly ash handling and storage</td>
<td>Wear dust-proof goggles, dust mask and rubber or PVC gloves.</td>
</tr>
</tbody>
</table>

Apart from this, all the employees are provided with helmets and safety shoes. It is statutory on the part of the company employees to wear the appropriate safety gear given while attending duty in the factory.

### 1.4.3 Off-Site Emergency Planning

The off-site emergency plan is an integral part of any hazard control system. It is 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 therefore complement each other. The roles of the various parties that may be involved in the implementation of an off-site plan are
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. Consideration of evacuation may include the following factors:

- 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.
- If fire is escalating very fast it is necessary to evacuate people nearby as soon as possible.
- In acute emergency people are advised to stay indoors and shield themselves from the fire.

**Organization**

Organizational details of command structure, warning systems, implementation procedures, emergency control centres include name and appointments of incident controller, site main controller, their deputies and other key personnel involved during emergency.

**Communications**

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

**Special Emergency Equipment**

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

**Voluntary Organizations**

Details of Voluntary organizations, telephone numbers nearby of hospitals, Emergency helpline, resources etc are to be available with chief authorities.

**Non-government Organizations (NGO)**

NGO’s could provide a valuable source of expertise and information to support emergency response efforts. Members of NGOs could assist response personnel by performing specified tasks, as planned during the emergency planning process.

- Evacuation of personnel from the affected area
- Arrangements at rallying posts and parking yards
- Rehabilitation of evacuated persons

**Chemical Information**

Details of the hazardous substances (MSDS information) and a summary of the risks associated with them are to be made available at respective site.

**Meteorological Information**

There is to be arrangements for obtaining details of weather conditions prevailing at time of accident and weather forecasts updates.
Humanitarian Arrangements

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

Public Information

☞ Dealing with the media-press office
☞ Informing relatives, etc

Assessment

☞ Collecting information on the causes of the emergency
☞ Reviewing the efficiency and effectiveness of all aspects of the emergency plan.

Role of local authority

Local Authorities like Panchayat, Sabha, Samity, municipalities can help in combating emergency situation after assessing the impact scenario in rescue phase.

Role of police

The police is to assist in controlling of the accident site, organizing evacuation and removing of any seriously injured people to hospitals.

☞ Co-ordination with the transport authorities, civil defence and home guards
☞ Co-ordination with army, navy, air force and state fire services
☞ Arrange for post mortem of dead bodies
☞ Establish communication centre with easy contact with ECC.

Role of Fire Brigade

The fire brigade is to be organized to put out fires and provide assistance as required during emergency.

Media

☞ The media is to have ready and continuous access to designated officials with relevant information, as well as to other sources in order to provide essential and accurate information to public throughout the emergency and to avoid commotion and confusion.
☞ Efforts are made to check the clarity and reliability of information as it becomes available, and before it is communicated to public.
☞ Public health authorities are consulted when issuing statements to the media concerning health aspects of chemical accidents.
☞ Members of the media are to facilitate response efforts by providing means for informing the public with credible information about accidents involving hazardous substances.

Role of health care authorities

☞ Hospitals and doctors must be ready to treat all type of injuries to causalities during emergency
Co-ordinate the activities of Primary Health Centres and Municipal Dispensaries to ensure required quantities of drugs and equipments

Securing assistance of medical and paramedical personnel from nearby hospitals/institutions.

Temporary mortuary and identification of dead bodies

1.5 Conclusion

It has concluded that there will be no major risk involved due to proposed project activity. Proper precaution will be taken so risk can be minimized. Personal Protective Equipments (PPEs) will help to minimize the health hazards and accidental casualties. So it is safe to say that there will be no major risk involved due to the proposed expansion project.