

Risk Assessment and Disaster Management Plan

**Proposed Expansion of Clinkerization Plant (4.0 to
8.0 MTPA) along with Captive Power Plant (55 to 160
MW)
At
Village - Vayor, Taluka- Abdasa, District - Kutch
(Gujarat)**

**M/s. UltraTech Cement
Limited
(Unit: Sewagram
cement Works)**

RISK ASSESSMENT AND DISASTER MANAGEMENT PLAN

1.1 RISK ASSESSMENT AND DISASTER MANAGEMENT PLAN

1.1.1 Risk Assessment & Damage Control

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

Accidental risk involves the occurrence or potential occurrence of some accident consisting of an event or sequence of events resulting into fire, explosion or toxic hazards to human health and environment.

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

1.1.2 Hazard Identification & Risk Assessment (HIRA) for Integrated Cement Project

The cement manufacturing industry is labor intensive and uses large scale and potentially hazardous manufacturing processes. The industry experiences incident 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;
- ⌘ Electrocuting;
- ⌘ Natural & Manmade hazards
- ⌘ Noise and Vibration

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 incidents with the concerned area have been enlisted below in Table - 1.1.

Table - 1.1
Possible Hazardous Locations on site

S. No.	Hazardous Area	Likely Incident
1.	Kiln Area	Hot Zones
2.	Electrical rooms	Fire and electrocution
3.	Transformer area	Fire and electrocution
4.	Cable tunnel	Fire and electrocution
5.	Storage yard	Sliding and fire
6.	Crushing and grinding unit	Nip Hazard, Noise
7.	Chimney	Height
8.	Coal / fuel / AFR storage area	Fire and spillage
9.	Turbine room	Explosion

1.1.2.1 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 kiln or other hot equipment. Recommended prevention and control techniques include the following:

- ⌘ Shielding surfaces where workers 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.

1.1.2.2 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.

Following measures have been/will be adopted 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.
- ☞ An exclusion zone is to be created beneath areas where work is taking place.
- ☞ 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 is being/ will be provided at the plant site.

1.1.2.3 Events pertaining to the manufacturing process

Following areas are identified as hazard prone in case of Integrated Cement Plant where Disaster management plan is required.

(i) Handling of Coal

- ☞ The coal is/will be received and stored in Stockpile. The possible hazards are envisaged due to the slipping of wagon during unloading.
- ☞ Stockpile is/will be made in a way so that the wind strikes the width of the stockpile and not the length.
- ☞ During summer season, there is chance of coal catching fire due to spontaneous heating.
- ☞ Effective sprinkling systems are/will be provided all round the coal storage yards.

(ii) Handling of fine dust

The hot raw meal (Powdered limestone, powdered coal, laterite additives etc.) is/will be heated in a multi - stage pre-heater cyclone and 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. Though, the operation of the pyro is in close circuit, there is a less possibility of the risk associated with the exposure to hot material. The relevant PPEs are being/will be provided during cleaning to the workers with sufficient care during the maintenance operations.

(iii) Handling of Hot Clinker

The hot clinker is being/will be transported by deep pan conveyors to the top of the silo or closed 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 is/will be the part of design criteria.

(iv) Handling of Cement

Cement is the fine dust which is being/will be conveyed in a closed circuit (mechanical and/or pneumatic or combination of both) to avoid any health and environment risk.

1.1.2.4 Fire

Fire can be observed in the boiler area, Coal storage yard, Fuel spillage, Electrical rooms, Transformer area, AFR Storage area etc. due to incidental failure scenario. Fire detection, alarm and control system helps for early detection as well as control measures.

Suitable Fire extinguishers, Fire hydrant system and Fire buckets, Fire suppression system, Inert gas flooding system, Fire sprinkler system have been/will be provided for fighting the fire during emergency. Employees working in such areas have been/will be imparted training for first aid fire fighting to prevent/extinguish the fire at initial stage.

**Table - 1.2
Anticipated Fire Hazard Scenarios**

S. No.	Area/ Activity	Hazard	Impact
1.	HSD	Fire may occur due to leakage in the tank which may lead to pool fire in contact with an ignition source.	Fire may propagate towards nearby sheds and buildings
2.	LDO Storage	Fire may occur due to leakage in the tank which may lead to pool fire in the contact with an ignition source.	Fire may propagate towards nearby sheds and buildings.
3.	Furnace Oil Bulk Storage capacity	Fire may occur due to leakage in the tank which may lead to pool fire in contact with an ignition source.	Fire may propagate to nearby sheds.
4.	Transformer Oil stored in Conservator	Fire may occur due to leakage in tank or blowing of rupture disk which may lead to pool fire in contact with an ignition source	Fire may propagate towards nearby sheds and buildings.
5.	Storage of Coal in	Fire may occur due to spontaneous	Fires will propagate within the

S. No.	Area/ Activity	Hazard	Impact
	Coal Storage Yards	ignition of coal.	coal storage yard.
6.	Storage and handling of ground coal	Dust explosion may occur during storage and handling of ground coal	Fire may occur in the ground coal storage and handling system affecting other areas as well.

Fire and rescue team of the unit is as below -

S.N.	Team	Name of the Employee with Designation	Contact Numbers	
			Office	Residence
1.	Team Leader	NandlalChaubey	231	
2.	Team Member(s)	F B Chaubey	230	
3.	Team Member(s)	Harpreet Singh Arora	230	
4.	Team Member(s)	Nehru Singh	230	
5.	Team Member(s)	Ajit Singh Yadav	263	
6.	Team Member(s)	Arvind Kumar	101	
7.	Team Member(s)	Sanjay Kumar	--	
8.	Team Member(s)	Chirag Parmar	---	
9.	Team Member(s)	Parmeshar Singh	----	--
10.	Team Member(s)	Anil Kumar	101	----
11	Team Member(s)	Om Prakash	101	----
12	Team Member(s)	Aijivender	101	----
13	Team Member(s)	Mohit Sharma	101	-----

1.1.2.5 Explosion

Explosion may lead to release of heat energy & Pressure waves. Table - 1.3 shows tentative list of damages envisaged due to different heat loads.

Table - 1.3
List of Damages Envisaged at Various Heat Loads

S. No.	Heat loads (kW/m ²)	Type of Damage Intensity	
		Damage to Equipment	Damage to People
1	37.5	Damage to process equipment	100% lethality in 1 min. 1% lethality in 10 sec
2	25.0	Minimum energy required to ignite wood	50% Lethality in 1 min. Significant injury in 10 sec
3	19.0	Maximum thermal radiation intensity allowed on thermally unprotected equipment	-
4	12.5	Minimum energy required to melt plastic tubing	1% lethality in 1 min
5	4.0	--	First degree burns, causes pain for exposure longer than 10 sec

S. No.	Heat loads (kW/m ²)	Type of Damage Intensity	
		Damage to Equipment	Damage to People
6	1.6	--	Causes no discomfort on long exposures

Source: World Bank (1988). Technical Report No. 55: Techniques for Assessing Industrial Hazards, Washington, D.C: The World Bank.

1.1.2.6 Electrocutation

Fatal Incident due to carelessness during working hours may lead to electrocution.

1.1.2.7 Natural and Manmade Calamities which can lead to Emergency

(a) Earthquake

Gujarat state lies in earthquake zones III, IV and V. Some area of Jamnagar, Dwarka, Palanpur etc., districts fall in zone IV where as many parts of Porbandar, Gandhinagar, Surat Bharuch, Vadodara, Ahmadabad etc., fall in zone III and areas like Bhuj, Mundra, Kutch, Lakhpath etc., falls under Very High Damage Risk Zone.

The project site as well as study area lies in Zone-V of Seismic Zoning Map of India, updated by India Metrological Department (IMD) and National Institute of Disaster Management (NIDM), and thus can be said to be located in an area of Very High Damage Risk Zone by national standards. 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:

During a major earthquake shaking of the earth or building is experienced. This shaking may start out as a gentle rocking motion that grows violent, or it may begin as a violent jolt. One will find it difficult to walk during the shaking.

During the Earthquake

- Stay where you are, get under a desk or table or stand in a doorway or the corner of the room. Do not seek cover under tables or benches in laboratories. Chemicals could spill and harm you. If possible, extinguish fires, flames, or other sources of ignition.
- If you are outside get into an open area away from buildings, power lines and trees.
- Do not use elevators.
- If you are driving, pull over to the side of the road and stop immediately. Avoid overpasses and power lines. Stay inside the vehicle until the shaking has stopped.

After the Earthquake

- Gather your valuables and leave the building quickly. If necessary, provide assistance to those who have been trapped in the building, including those with mobility impairments or those who are trapped by debris. Gather at the designated meeting location.
- To expedite rescue and emergency services, a sign should be posted on the front of the building denoting that all of the occupants got out or that people may be trapped in the building. If you know someone is trapped, note the time, date, number of victims, and their last known locations on the sign.
- Check for injuries, but do not move seriously injured people unless the danger in the area is greater than their injuries.
- Remember, a significant earthquake will affect the entire city and country. You may have to fend for yourself and your fellow workers for quite a long time. Render whatever aid you can provide, but remember that you are responsible for your personal safety.
- Use telephones only to report emergencies (i.e., gas leaks, fire, injuries).
- People working in Plant or other trained individuals should turn off utilities.
- Never touch downed utility poles or lines. Avoid damaged building equipment.
- Do not use your vehicle unless there is an emergency. Keep the streets clear for emergency vehicles.

Be prepared for aftershocks. Aftershocks are usually smaller than the main quake, but they may be strong enough to topple already damaged buildings.

(b) Sandstorm

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

- ⌘ Gather at a safe place to evacuate to storm surge or floods are threading. Family and friends who live in secure accommodation that is further inland and on higher ground are the best option.
- ⌘ Ensure you have a supply of fuel stored safely in your garage in case you need to evacuate at short notice.
- ⌘ Practice a drill with your family to ensure everyone is familiar with the evacuation plan.
- ⌘ Ensure everyone is familiar with the Standard Emergency Warning Signal (SEWS).

After the Storm

- ⌘ Gather your valuables and stay in strong building. If necessary, provide assistance to those who have been trapped in the building, including those with mobility impairments or those who are trapped by debris. Gather at the designated meeting location.
- ⌘ Remember, a significant cyclone / storm will affect the entire city and country. You may have to fend for yourself and your fellow workers for quite a long time. Render whatever aid you can provide, but remember that you are responsible for your personal safety
- ⌘ Use telephones only to report emergencies (i.e., gas leaks, fire, injuries).
- ⌘ People working in Plant or other trained individuals should turn off utilities
- ⌘ Never touch downed utility poles or lines. Avoid damaged building equipment.
- ⌘ Do not use your vehicle unless there is an emergency. Keep the streets clear for emergency vehicles.

(c) Air Raid

Air raid warning would be obtained from the District Emergency Authority or Defense Authorities, during which total blackout of the entire complex will 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 shall be switched off.
- ⌘ All the lighting on the Streets shall be put off.
- ⌘ All the plant lighting shall be put off.
- ⌘ Brown curtains shall be provided for all windows inside the building.
- ⌘ Other emergency actions shall be followed in addition as per the general procedure.

1.1.2.8 High Risk Categories and Preventive Measures

High Risk Categories and Preventive Measures are given in **Table - 1.4.**

Table - 1.4
High Risk Categories and Preventive Measures

High Risk Categories	Prevention
Contractors	Contractor Safety Management
Young/Temporary Employees	Special Safety Induction Training
Direct Causes	
Traffic & Mobile Plant	Driver Training
Falls from Heights, Objects falling from Heights	Safety Procedures for Work at Heights, Overhead Protection, In-house training
Caught in Starting/Moving Equipment	Plant Isolation Procedures, Machine Guarding

1.1.2.9 Measures for occupational Health Hazards

- ⌘ Dust Exposure level of shop floor workers is being/will be appropriately monitored.
- ⌘ Check of the effectiveness of preventive and control measures on regular basis.
- ⌘ Adequate supply of potable drinking water is being/will be provided. Water supplied to areas of Plant food preparation or for the purpose of personal hygiene (washing or bathing) are/will be according to drinking water quality standards
- ⌘ Where there is potential for exposure to harmful dusts by ingestion, arrangements have been/will be made for clean eating areas, where workers are not exposed to the hazardous or noxious substances
- ⌘ Periodic medical hearing checks are being/will be performed on workers exposed to high noise levels
- ⌘ Provisions have been 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 have been/will be hired, extending the application of the hazard management activities through formal procurement agreements
- ⌘ Ambulances and First aid treatment facilities are/will be made available for any emergency situation.

1.1.3 Disaster Management Plan

1.1.3.1 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.

1.1.3.2 Scope

The aim of hazard control and disaster management is concerned with preventing incidents through good design, operation, maintenance and inspection, by which it is possible to reduce the risk of an incident, but it is not possible to eliminate it. Since, absolute safety is not achievable; an essential part of major hazard control must also include mitigating the effects of a major incident.

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

1.1.3.3 Objective

The overall objectives of the emergency plan will be:

- a) To localize the emergency and, if possible eliminate it; and
- b) To minimize the effects of the incident on people and property.
- c) Restore normalcy at minimum possible time

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.

1.1.4 Onsite Emergency Plan

Disaster control Management system

Disaster Management plan plays an important role in combating emergency in a systematic manner. In addition; the implementation of an Emergency Response Plan relies on a number of response functions, which deal with different aspects of emergency, with the most important ones being:

- ∞ Communication and Co-ordination
- ∞ Emergency procedure
- ∞ Fire and Rescue (Emergency Mitigation) Emergency Control Team at Incident Site
- ∞ Medical Services
- ∞ Security
- ∞ Administration (Logistics and Welfare)
- ∞ Co-ordination with external agencies.

1.1.4.1 Onsite Emergency Plan

The Onsite Emergency Management Plan is a master plan which contains the emergency organization structure, responsibilities of key members, communications mean and emergency response strategies to control a range of major incidents.

1.1.4.1.1

Risk Scenarios at UltraTech Ltd.

Potential and high hazard situation will be treated as major emergency. Emergency will be declared by the Head-EHS after assessing the situation.

The prime risk scenarios as evaluated from hazard identification are:

Fires: Fire at fuel storage yard, Trash catching fire, diesel fire, cable fire, Paint fires, construction waste fires, electrical fire in panels, transformer oil fire, Fire in administrative building, combustible gas fire, and flammable liquid fire, etc.

Explosion: LPG cylinder explosion, air receiver cylinder bursting, bomb explosion, gas pipe line bursting, bursting of new fuel pipe line during testing, etc.

Leakage: Leakages of toxic gases, combustible gases etc.

Spillage: spillages of acids / chemicals / flammable liquids/ non-flammable liquids etc.

Contamination: Drinking water contamination with poisonous chemicals.

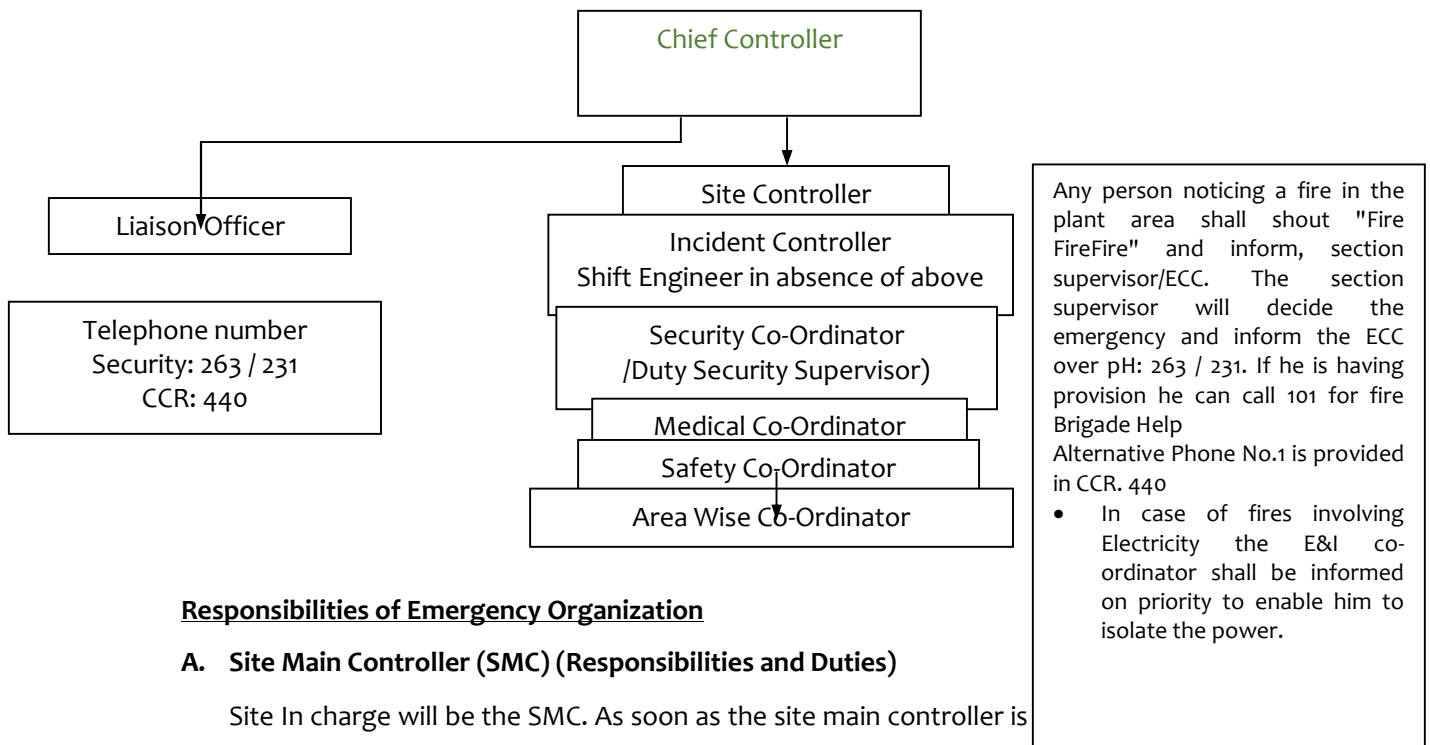
Construction disasters: Building collapse, form work collapse, rubbish chute choke, scaffolding collapse, tower crane collapse, mobile crane/crawler crane topple, Major electrical shutdown (during night time)

Road emergencies: Road accidents

Others: Cyclonic winds, Flooding, Food poisoning, epidemics, earth quake, Landslides etc.

1.1.4.1.2 Emergency Organization and its Responsibilities

Command and control of an emergency condition encompasses the key management functions necessary to ensure the health and safety of employees, as well as those of public living in the vicinity. In addition, the implementation of an Emergency Response Plan relies on a number of response functions, which deal with different aspects of emergency, with the most important ones being.



Responsibilities of Emergency Organization

A. Site Main Controller (SMC) (Responsibilities and Duties)

Site In charge will be the SMC. As soon as the site main controller is he will proceed to the emergency control center. On arrival, he will:

- ☞ Relieve the site incident controller of responsibility for overall control.
- ☞ Ensure that the outside emergency services are called in.
- ☞ Ensure that key personnel are called in.
- ☞ Exercise direct operational control of those parts of the work outside the affected area.
- ☞ Maintain a speculative continuous review of possible developments and assess these to determine most probable course of events.

- ☞ Direct the shutting down of equipment and evacuation of areas in consultation with the site incident controller and key personnel.
- ☞ Ensure the casualties and receiving adequate attention. Arrange for additional help, if required. Ensure that relatives are advised.
- ☞ Liaise with Chief Officers of the fire and police services and with the experts on fire, safety, health etc. provide advice on possible effects on areas outside works.
- ☞ Where the emergency is prolonged, arrange for the relief of personnel and the provisions of catering facilities.
- ☞ Ensure the proper consideration is given to the preservation of evidences for investigations
- ☞ Ensure with site incident controller about instructions of “ALL CLEAR” communication.
- ☞ Ensure and control rehabilitation of affected areas.
- ☞ Communication to UltraTech Cement Ltd. followed by a written report about the accident, including mitigation action taken.

B. Site Incident Controller (SIC) (Responsibilities and Duties)

Site SHE Head will be SIC. As soon as the site incident controller is aware of the emergency and its location, the site incident controller will proceed to the scene and he will:

- ☞ Assess the scale of emergency and decide if a major emergency situation exists or is likely. On this decision, he will activate the subsequent major emergency procedure.
- ☞ Direct all operations within the affected area with the following priorities:
 - ☞ Secure the safety of personnel
 - ☞ Minimize damage to equipment, property and the environment
 - ☞ Minimize loss of material
 - ☞ Direct rescue and firefighting operations
 - ☞ Ensure that the affected area is searched for unattended casualties.
 - ☞ Ensure that all non-essential workers in the affected area evacuate to the appropriate assembly point.
 - ☞ Direct the outside emergency services if called for emergency.
- ☞ Pending the arrival of the site main controller, assume the duties of the post and, in particular:
 - Direct the shutting down of equipment and evaluation of areas likely endangered by the emergency.

- Ensure that the outside emergency services have been called in.
- Ensure that key personnel have been called in.
- ☞ Report all significant development to the site main controller. Provide advice and information, as required, to the senior officer of the Fire Brigade.
- ☞ Ensure the head counting for personnel.
- ☞ Control traffic movement within the works.
- ☞ Ensure that chronological record of the emergency to be maintained.
- ☞ Have regard to the need to preserve evidence that would facilitate any subsequent esquire into the cause and circumstances of the emergency.
- ☞ Direct the instructions about the “ALL CLEAR” communication through mobile phones & walkie-talkie.

C. Duties of the Key Persons of the Assistance Groups

• Duties of Head – HR & ADMIN:

- ☞ He handles the evacuation of the personnel from the emergency situation to the Assembly point.
- ☞ He takes the head count of the Evacuated personnel.
- ☞ He will assist the site controller in liaise with the local emergency authorities.
- ☞ Manage traffic movement towards the incident area and clears way to the Emergency vehicles.

• Duties of Head – Electrical:

- ☞ He will be the heading the Shutdown.
- ☞ After receiving the communication from the Incident controller, he will arrange to stop the power supply to the site and shutdown of the other equipment at site as per requirement.
- ☞ After receiving the “All Clear” communication from the incident controller, he will resume the power supply to site.

• Duties of Head-Mechanical

- ☞ He will be the heading the heavy equipment
- ☞ After receiving the communication from the Incident controller, he will arrange to properly access at site.
- ☞ After receiving the “All Clear” communication from the incident controller, he will resume the tool tackles (welding machine, cutting machine, grinding machine etc.) to site.

• Duties of the fire fighting team

- ⌘ After receiving the emergency communication, they will immediately report to the Incident controller.
- ⌘ As per his instruction they will mobilize the Fire fighting equipment's and Leak control kits etc.
- ⌘ They will control the fire & Gas leakages.
- ⌘ In emergency situation other than Fire & Gas leakages, they will help the first aid team.
- **Duties of the first aid team**
 - ⌘ After receiving the emergency communication First aid team will immediately reports to the Incident controller
 - ⌘ First aid team will remove the casualties from the incident area to the safe place.
 - ⌘ They will provide the immediate first aid to the casualties.
 - ⌘ Help them to transport to the medical aid if warrants.
- **Duties of Person who first detects a Fire / Accident**
 - ⌘ On noticing a fire or accident he will immediately try to alert the personnel in the vicinity by shouting. He will notify the location of fire / accident.
 - ⌘ He will try to control the emergency by using proper fire & safety equipment's / installations at the site.
 - ⌘ If possible, he shall try to salvage the equipment's and materials not involved in the fire / accident.
- **Duties of area incharge of Emergency Affected Area**
 - ⌘ He will immediately proceed to the scene of incident to confirm and assess the situation.
 - ⌘ He will notify the nature of emergency to the fire station and security office to inform SIC / SMC and the concerned persons.
 - ⌘ Area In-charge should clearly indicate to fire station and security office about
 - I) Nature of emergency
 - II) Location of emergency
 - ⌘ He will ensure that all hot jobs including welding, cutting, grinding, chipping, open fire heating, etc. are stopped in the area.
 - ⌘ He will coordinate the actions of site emergency services, maintenance services and other services for quick control of the situation, he will also perform emergency control measures as per directions from SIC / SMC.

- ☞ He will furnish the full details about the incident to the Senior Management and Safety Officer, SMC / SIC, and other emergency services at site.
- ☞ He will set up an emergency control post on site for team leaders of assistance groups from where the control and direction of the emergency operation is safe and he will arrange some communication media e.g. telephone at the emergency control post.
- ☞ He will keep himself in constant touch with the emergency post and continue to pass on information / receive direction from emergency post to the concerned personnel.
- ☞ He will ask for spare manpower from the other area in-charges of the unaffected areas for the help in emergency operations, if required.
- ☞ He will announce through paging system or any other way, in the concerned affected area for evacuation of the personnel to their designated assembly point, if required.
- **Duties of Area in charge of Unaffected Area in Emergency**
 - ☞ After getting information from emergency control Post of affected area he will send the spare persons from his area and report to the emergency post on site.
 - ☞ He will render all necessary help to the in-charge of the affected areas in tackling and controlling the emergency situations as directed from the control post.
 - ☞ He will maintain normal operating conditions of his equipment's, until gets the instructions from emergency control post / SMC / SIC.
- **Duties of Concerned Section Head**

On receipt of information of emergency:

 - ☞ He will ensure about the steps to localize the hazards and decide about the operations of various equipment's and units at the site. If necessary, he will ensure the safe shutdown of the plant, so as to stop the spread of hazard, with the consultation with SM / SIC.
 - ☞ He will ensure to give the inventory of hazardous materials and operations hazards to various assistance groups for emergency handling.
 - ☞ He will look after the emergency operations in the concerned area.
- **Duties of Staff in affected areas**
 - ☞ They shall act as per instructions of their In-charge. Trained personnel will be nominated to assistance Fire fighters to fight the fire. Other persons will take care of their areas as usual, unless otherwise directed by the Area In-charge.
 - ☞ They are expected not to be panicky but remain calm. If called for evacuation they will follow instructions in an orderly disciplined manner.

- ☞ *If directed to evacuate, the Area In-charge may direct them to safe shutdowns of running machines and evacuate in a disciplined manner.*
- ☞ *After evacuation they will collect at the nearest specified assembly point and await further instructions from the Area In-charge.*
- ☞ *Shall see that the persons assigned with specified duties in an emergency are not disturbed or obstructed.*
- **Duties of the Other Staff in Unaffected Area**

They will follow the emergency signals and instructions given by In-charge / SMC / SIC.

 - ☞ *They will not leave their place of work and will continue the routine work.*
 - ☞ *They are expected not to be panicky but remain calm. If called for evacuation they will follow instructions in an orderly disciplined manner.*
 - ☞ *If directed to evacuate, the Area In-charge may direct them to safe shutdowns of running machines and evacuate in a disciplined manner.*
 - ☞ *After evacuation they will collect at the nearest specified assembly point and await further instructions from the Area In-charge.*
 - ☞ *Shall see that the persons assigned with specified duties in an emergency are not disturbed or obstructed.*
- **Procedures to be followed during non-working hours**

The help of most of the personnel listed earlier will not be available and hence a separate working procedure has to be followed:

 - ☞ *All applicable duties for silent hours / enumerated earlier will apply.*
 - ☞ *In-charge of the affected area will handle the situation with the available manpower and services, till the designated authorities of emergency organization reach the emergency site.*

1.1.4.1.3 Emergency Control Post

Emergency control post will be set up at the time of any major emergency, by the in-charge of the concerned area, for team leaders of assistance groups, from where the control and directions of the emergency operation is safe. Communication media e.g. telephone will also be provided at the control post.

1.1.4.1.4 Assembly Points

The assembly points are provided so as to cover the whole site area with the consideration of wind direction, nearby paging facility and more than one road approach on each point.

S. No.	Area	Location	Assembly Points Board No.
1.	Mines Auto-Workshop	Near Mines Pota Cabin	01
2.	Raw Mill, Coal Mill, Pre- Heater, Cooler House of SP-I & II, LC-II	In front of CCR	02
3.	Cement Mill & Packing Plant, Gunny Bag Go down (SP-I & II), LC - III	In front of Cement loading near Security Post	03
4.	CPP-I & CPP-II	Near ACC-I	04
5.	Stacker Reclaimer Dump hoppers, Coal Yard & Circular stock pile & LC-I	In front of Stacker Reclaimer office	05
6.	Time Office, General Store, Fire Station	In front of time office	06
7.	NAPU	Near Security cabin NAPU	07

1.1.4.1.5 Communication System

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. The possible communication can be given by

- a) By telephone,
- b) By shouting,
- c) By messenger,
- d) By walkie-talkie

Concerned SHE In-charge will inform the Fire Station through the quickest way possible for quick response and Security Office for passing of the information to the concerned persons and services. The following persons and services inside the work place will be informed in case of major emergencies like – major fire, major accident, major spillage, gas leak, cyclone, etc. These authorities and services will be notified by Security Officer as per the direction by the Head - SHE of the Site.

- a) Fire Station
- b) Medical Centre / Medical In-charge
- c) Plant head
- d) SHE Staff
- e) Security Staff

1.1.4.1.6 Basic Steps for Handling the Various Emergencies

A. Emergency Evacuation Procedure

- ☞ On receipt of evacuation instructions, the personnel in the affected area shall proceed to their designated assembly point.
- ☞ On receipt of evacuation, personnel shall close all the working gadgets, taking care that closing or shutting down operations does not lead to additional hazards.
- ☞ When the emergency is announced, one security guard at the site gate will be posted by security section and he will secure the vehicle gates halting all routine traffic and material movement into the site. This guard shall clear the road from the main gate so that if outside emergency vehicles are needed the road be clear.
- ☞ All personnel of the site will remain at their announced assembly points until the clear signal is announced.
- ☞ When the emergency announcement has been made, outside contractors on site will be instructed to report to the gate. Their supervisors should make a count of all personnel and report this data to the security at the gate.
- ☞ Evacuation of the people will be especially in the opposite direction of exposure / wind direction.

B. In Case of Fire

In case of emergency, if required, help would be taken from nearby city fire station and industries under mutual aid arrangement, in addition to our own firefighting systems as fixed installations and other firefighting equipments.

C. In Case of Collapse of Building, Shed or Structure

In case of collapse of Building, Shed or Structure raise the emergency alarm, inform the Head-SHE and evacuate the area. Call Fire Brigade to assist in removal of debris from the site and immediately arrange any medical help if required.

D. Liquid Spill Control Procedure

- ☞ Any spillage will be immediately localized and the area cordoned off.
- ☞ Area In-charge will announce about the spillage through the public-address system and inform to the Fire Station, Medical Centre, Security and Site In-charge.
- ☞ Vehicular traffic will be stopped by the security staff in the affected area of the plant.
- ☞ It will be kept in mind that chemical spillage will not be drained to the common drainage system from the site.

E. Injury Procedure

- ☞ In case of injury to any member, information will be sent to Medical Centre.

- ☞ First aiders will give the first aid at Emergency area.
- ☞ First aiders will advise medical attention for the injured.

F. Storm

Area In-charge will take the following actions in case of storm.

- ☞ All loose, light objects will be removed from the site, which could become hazardous missiles during high winds.
- ☞ Buckets, ladders, maintenance materials and other like things will be placed in the safe place.
- ☞ Hydra, trucks, welding machines, etc. will be placed at safe positions / places.
- ☞ All construction materials i.e. beams, pipes, power equipment's etc. which cannot be moved to a safe location, they will be lashed in place in the best possible manner known.

G. Riot or Civil Disturbances Procedure or Bomb Threat or Terrorist Attack

If there are persons on or near company property with the suspected intent of causing damage to the property, injury to the plant personnel, disruption of normal operations, etc. The information will be given to SH (P&A) / SH (Security) and the following steps will be taken:

- ☞ Security In-charge will be instructed to give the related details and the police services will be informed, if required.
- ☞ The staff on duty or other personnel as given under plant personnel emergency notification list will be called for alertness.
- ☞ Security In-charge will instruct to the security to close and lock all the site entry gates.
- ☞ It will be ensured that no unauthorized person is allowed access to the site without positive identification by the gate security staff & as per instructions given by Head HR & Admin.
- ☞ Emergency vehicles will be kept ready.
- ☞ Medical staff at the Medical Centre will be alerted.
- ☞ Fire & Safety staff will be alerted.
- ☞ All Area In-charges of the site will be alerted.

H. Land Slide, Floods, Earthquake, And Other Natural Calamities

In case of a land slide, earthquake or any other natural calamity, the incident controller will immediately inform the Main Site controller, who will contact the Corporation (VMC), and police for remedial actions. ULTRATECH will also be immediately informed to apprise them of the situation.

- ☞ The staff on duty or other personnel as given under plant personnel emergency notification list will be called for alertness.
- ☞ Emergency vehicles will be kept ready.
- ☞ Medical staff at the Medical Centre will be alerted.
- ☞ Fire & Safety staff will be alerted.
- ☞ All Area In-charges of the site will be alerted.

I. Review of Emergency

A team, under the chairmanship of Plant head will review the situation and decide the actions to be taken to mitigate the effect and restart the operations without losing any time.

1.1.4.1.7 Emergency Contact Numbers: ULTRATECH CEMENT LIMITED

List of telephone numbers for emergency situations are given below:

PERSON	INTERCOM		PHONE NUMBER
	Name	O	R
Mukesh Gautam	202 / 402	302	8424027160
Anil Kumar Soni	208	353	-
Sunil Kanthed	426	326	9712966715
S K Pathak	432	385	7069091160
Deepak Surana	429	608	7069091161
Pattu Singh	445	390	7069091162
M. Sri Niwas Rao	446	616	7069091163
Rakesh Gatani	448	348	7069091168
Kanhaiya Singh	387/ 439	609	7069091167
Vijay Kumar	410	346	9904201666
Balu Ram Sharma	443	320	7069091164
RiteshSuthar	433	---	7069091166
Vikash Singhal	424	---	7069091165
O P Sharma	223	334	7069091174
Sandeep Bajpai	349	---	9879540073
Amiya Dwivedi	229	---	7069091228

1.1.4.2 Off-Site Emergency Planning

The off-site emergency plan is an integral part of any hazard control system. It is based on those incidents 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 described below. The responsibility for the off-site plan will be likely to rest either with the works management or with the local authority.

Either way, the plan identifies an emergency coordinating officer who would take overall command of the off-site activities. Consideration of evacuation includes 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.*

1.1.4.2.1 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.

1.1.4.2.2 Communications

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

1.1.4.2.3 Special Emergency Equipment

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

1.1.4.2.4 Voluntary Organizations

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

1.1.4.2.5 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.*

1.1.4.2.6 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.

1.1.4.2.7 **Meteorological information**

There is to be arrangements for obtaining details of weather conditions prevailing at, before the time of incident and weather forecasts updates.

1.1.4.2.8 **Humanitarian Arrangements**

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

1.1.4.2.9 **Public Information**

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

1.1.4.2.10 **Assessment**

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

1.1.4.2.11 **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.

1.1.4.2.12 **Role of police**

The police are to assist in controlling of the incident 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 Head-EHS*

1.1.4.2.13 **Role of Fire Brigade**

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

1.1.4.2.14 **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 incidents.
- ☞ Members of the media are to facilitate response efforts by providing means for informing the public with credible information about incidents involving hazardous substances.

1.1.4.2.15 Role of health care authorities

- ☞ Hospitals and doctors must be ready to treat all type of injuries to casualties 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.

1.1.5 Conclusion

It has concluded that there will be no major risk involved due to proposed expansion project. Suitable Risk Control Measures with respect to Risk Assessment have been/will be implemented to minimize the risk to an acceptable level. Regular Training, Implementation of SOPs and compliance of relevant Personal Protective Equipment's (PPEs) shall help to minimize the health hazards and incidental casualties. So, it is safe to say that there will be no major risk involved due to the expansion project.

