

PRESENTATION

ON

“EMERGENCY PREPAREDNESS”



BY

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Why Emergency Preparedness

- ❖ To take prompt corrective actions to save lives and sufferings/injuries.
- ❖ To protect plant machines, equipments & buildings etc.
- ❖ To protect loss of materials.
- ❖ To Protect and minimize property losses.
- ❖ To resume normal situation or operation within minimum possible time.



NEED OF EMERGENCY PLAN

- ❖ **AFTER BHOPAL GAS DISASTER IN 1984, THE FACTORIES ACT 1948 WAS AMENDED IN 1987 AND NEW PROVISIONS REGARDING SAFETY AND EMERGENCY MANAGEMENT WERE ADDED.**
- ❖ **NOW IT IS A MANDATORY TO AN ORGANISATION TO PREPARE EMERGENCY PREPAREDNESS PLAN HANDLING HAZARDOUS CHEMICALS AS PER MSIHC RULES 1989.**
- ❖ **UNDER THE PROVISION OF SECTION 41B (4) OF FACTORIES ACT 1987, EVERY OCCUPIER SHALL HAVE VALID EMERGENCY PLAN FOR HIS FACTORY.**

SCOPE

EMERGENCY PLAN COMES IN TO EFFECT AT THE DECLARATION OF EMERGENCY AND EXTENDS UP TO TERMINATION OF THE EMERGENCY.



IT IS APPLICABLE TO ALL EMPLOYEES AND PERSONS AVAILABLE IN THE PLANT/FACILITY.

Emergencies

❖ ON SITE EMERGENCY

Controlling Authority is General Manager.

❖ OFF SITE EMERGENCY

Controlling Authority is District Collector.

Objectives of the Emergency Plan

This plan is a standing instructions for handling 'Emergency Situations.

The plan envisages pooling of resources to mitigate emergency.

To safe guard human beings, machines, equipments and property.

To safeguard other persons not affected by emergency so far.

Identify/rescue the casualties and arrange for their treatment.

To define channels of communications with key personnel.



Contents of Emergency Plan

The emergency plan for industrial facilities should include:

- ❖ **Brief Process description**
- ❖ **Various hazards available**
- ❖ **Classification of emergencies**
- ❖ **Emergency scenario envisaged**
- ❖ **Agencies required for Emergency handling**
- ❖ **Declaration and notification of emergency**
- ❖ **Emergency Control centre and assembly areas**
- ❖ **Communication facilities available**
- ❖ **First-aid centre and hospital facilities**

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- ❖ **Responsibilities of key personnel/Alternate persons with contact numbers.**
- ❖ **Monitoring of hazardous chemicals.**
- ❖ **Fire fighting and rescue arrangements.**
- ❖ **Assessment of conditions subsequent to release of toxic chemicals, rescue.**
- ❖ **Termination of emergency and notification of the same.**
- ❖ **Maintenance of emergency equipments.**
- ❖ **Surveillance and record keeping.**
- ❖ **Mutual aid scheme members and communication system among members.**
- ❖ **Periodicity of conducting drills/exercises.**

Identification of hazards

❖ Process Hazards

Chemical Hazards, Pressure Hazards,
Hazards, Temperature Hazards,
Cryogenic hazards

❖ Natural calamity

Flood, Earthquake, Psunami

❖ Electrical Hazard,

❖ Missile Attack, terrorist attack,
sabotage etc.

ACCIDENT SCENARIOS

- ❖ Massive leakage of toxic chemicals from process piping / equipment.
- ❖ Catastrophic failure of vessel, piping of chemical.
- ❖ Major fire
- ❖ Leakage of a road tanker containing hazardous chemicals likely to affect our site.
- ❖ Severe lightning / storm condition / flooding of plant area due to excessive rain.
- ❖ Severe earth quake and / or any explosion near the plant
- ❖ Air craft or missile impact on / near the Plant.

Means for declaring emergency

- ❖ **Emergency Siren** : It is operated from main Control Room. Power supply to the siren is class III, (backed by diesel generator).
- ❖ **Public Address System:** Public address system is provided at main Control room and it covers entire plant area and buildings. Power supply to P.A. system is class III (backed by diesel generator).

Declaration of emergency

❖ **Commence** :- Short intermittent signals 5 seconds 'ON' & 5 Seconds 'OFF' for a total period of 2 minutes.

❖ **Termination** :- A continuous signal (All clear) for 2 minutes.

❖ **Emergency announcement**

Emergency announcement on PA System shall be made in English, Hindi & Gujarati language.

RESOURCES

- ❖ **Communication systems (including Public Address System)**
- ❖ **Emergency Siren**
- ❖ **Transport for evacuation of plant personnel**
- ❖ **Assembly area**
- ❖ **First Aid facility including ambulance at site**
- ❖ **Fire Fighting and rescue arrangements**
- ❖ **Security arrangements**
- ❖ **Breathing air sets and facilities for bottling of breathing air.**
- ❖ **Laboratory facilities**
- ❖ **Monitors of Cl₂, POCl₃ , n-butanol & Explosi meter**
- ❖ **Fire Alarm System –Heat & Smoke Detectors**
- ❖ **Fire Pump House**

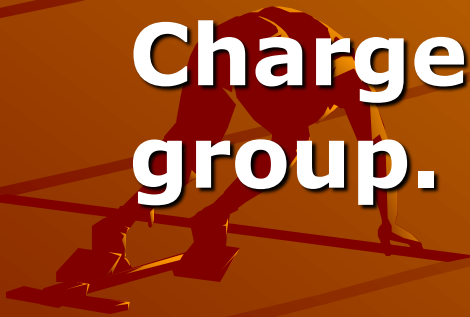
Site Emergency Director

Occupier /factory manager shall be Site Emergency Director and is overall Controlling Authority.

- ❖ On hearing the emergency siren or on getting information of the same he shall proceed to the emergency control center and take over as Site Emergency Director.
- ❖ He will assess the emergency situation based upon the information and data provided.
- ❖ He will direct handling of the emergency situation.
- ❖ He will arrange to intimate / liaise with authorities in DAE / AERB / HWB, Mumbai
- ❖ He will arrange to send casualties for treatment.
- ❖ He will seek assistance from mutual aid

Advisory Group

Advisory Group will assemble in emergency control centre and advise Site Emergency Director in consultation with Shift-In-Charge and damage control group.



Damage Control Group

- ❖ **Damage Control Group members shall assemble immediately in main control room on hearing siren.**
- ❖ **Provide necessary assistance to SI to coordinate the jobs pertaining to their sections for combating the emergency and controlling the damage.**
- ❖ **Carry out head count in their respective sections and report missing persons to Site Emergency Director.**
- ❖ **Follow up the progress of the handling of the emergency.**
- ❖ **Give feed back to SI / Site Emergency Director for terminating the emergency as soon as the situation eases**
- ❖ **Assess the losses and report to General Manager**

Station Officer

- ❖ On getting information he will immediately reach the fire station/ scene of fire and take charge of fire fighting / rescue operations etc. depending upon the situation.
- ❖ Till Dy CFO / Station Officer arrives on the scene the sub-officer / LFM on duty will take charge of the activities.
- ❖ He will ensure that necessary information is passed on to OIECR / GSFC / IPCL (Reliance Industries Limited) / GR / VMC fire services for immediate help through hot line or any alternate means of communication, if assistance is required in his opinion.

Information Officer

- ❖ He will inform the officers listed under 'Channels of Communication-Intimation of Emergency' about declaration of emergency.
- ❖ Information Officer is the only authorized channel through whom information should be given out into public domain. The Information Officer shall periodically collect all information, status of the emergency and maintain a chronological record of the events. He will be responsible for the receipt and transmission of information on the emergency and the control measures in progress to the appropriate authorities as per direction & advice by the SED.
- ❖ He will arrange for augmenting transport, ambulance, security and other facilities as required.
- ❖ Depending upon the situation he will assist SED to inform the relevant state Govt. Authorities i.e. Collector, Police Commissioner, General Hospital & other recognized hospital and ask for necessary assistance as per the instructions of SED.

Security Officer / Asst. Security Officer:

- ❖ On hearing / getting information about the emergency, he shall restrict entry of the personnel to the plant site as per the directions given by the SI / SED.
- ❖ He shall regulate the personnel movement into the plant site and no outsiders other than fire services shall be permitted through main gate.
- ❖ GSFC fire services shall also be permitted through north gate, which should be opened immediately on declaration of emergency.
- ❖ He shall not hold fire tenders from IPCL, GSFC, VMC fire services, Gujarat Refinery at gate during emergency at site.
- ❖ He shall inform the listed fire brigades on instructions from Dy CFO / SI / SED.
- ❖ He shall inform to hospitals etc. on instructions from SED/ Adm. Officer / Security Officer / Medical officer.
- ❖ The ASO will also inform the local officers under 'Channels of Communication-Intimation of Emergency' about declaration of emergency.

Emergency Management

- ❖ **Natural or man-made causes, which is beyond the coping capacity of the affected community.**
- ❖ **Disaster Management involves a continuous and integrated process of planning, organising, coordinating and implementing measures.**

Measures are necessary for:

- ❖ **Prevention of danger or threat.**
- ❖ **Mitigation of risk , severity or consequences.**
- ❖ **Prompt response during emergency.**
- ❖ **Assessing the severity or magnitude.**
- ❖ **Evacuation, rescue and treatment.**

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- ❖ Therefore such situations and risks should be visualized, assessed and planned to tackle successfully within the shortest time.**
- ❖ Hence there is a need for consideration of safety aspects right through the design, siting, construction and operation stages.**
- ❖ All the aspects anticipated from manmade and natural disasters are to be considered during the design of the plant.**
- ❖ Emergency management Plan should be made available for handling any type of emergency.**

General information

- ❖ **Seismic Zones**
- ❖ **Average wind speed**
- ❖ **Wind direction**
- ❖ **Rain fall Earth quake**
- ❖ **Max. and Min. Temp**
- ❖ **Air port**
- ❖ **Railway Station**
- ❖ **School /College**
- ❖ **Highway etc**
- ❖ **SITE AREA MAPS**

Emergency action plan,

- ❖ Maintenance of emergency preparedness,
- ❖ Records,
- ❖ Periodicity of conducting drills/exercises,
- ❖ Public awareness programmes and
- ❖ Training of plant personnel and public authorities.
- ❖ The Regulatory Body shall formulate guidelines on counter measures to be
- ❖ taken at various intervention levels, along with derived intervention levels in the case of off-site emergencies. Action plans, based on these guidelines and other requirements in the off-site emergency plans, for nuclear and radiation facilities in general, are described in detail in the Safety Guidelines for preparation of emergency

Mutual Aid Scheme

There is a mutual aid scheme in off Site Industrial Emergency Control Room situated in materials building of Reliance Industries of which HWP, Baroda is a member.

This is headed by Collector and District Magistrate, Vadodara and is manned round the clock.

A wireless base station located in Fire Station of HWP, Baroda connects to Off-site industrial emergency control room (OIECR).

Hot line telephone facility from HWP, Baroda fire station to the Fire Stations

Emergency Control Center

- ❖ An emergency control center is established for use during the emergency. Its location is in the General Manager's office, in technical building (housing all necessary communication gadgets including STD telephones, wireless, GSFC telephone, HWP telephone and communication lists and formats and other appliances as listed). The Meeting room in main control room will serve as the alternate Emergency Control Center. Direction of emergency activities should be transferred from the plant control room to emergency control center/alternate Emergency Control Center as soon as possible to enable plant operators to perform system and field operations without disturbance.

Assembly Point & Escape routes

- ❖ Multipurpose hall near security gate is declared as assembly point during emergency in the plant. All persons will assemble in the multipurpose hall if they are asked to do so.
- ❖ All person will remain present at their work place, in case of site emergency is in local zone only and not effecting health of plant employees.
- ❖ In case of evacuation is forced from the plant due to emergent situation, an announcement will be made through PA system to all employees to assemble in the assembly hall. All persons (except emergency staff) will assemble section wise in multipurpose hall. The senior most person of each section will make head count and report to Site Emergency Director. The plant persons may be shifted to safe place by available means, if requires.
- ❖ All plant persons will walk through different roads / emergency exits marked in the plant to assemble in multipurpose hall in case of emergency.
- ❖ All persons will follow escape route and will reach multipurpose hall (Assembly point) after hearing announcement made though PA system.

LIST OF EQUIPMENT IN EMERGENCY CONTROL ROOM

- ❖ **B.A. Sets / Escape packs 2 Nos.**
- ❖ **SEPP with Baroda Area Map, and Plant Layout drawing**
- ❖ **Plant system flow sheets**
- ❖ **Safety Report**
- ❖ **Pre-calculated concentrations of toxic release at various distances**
- ❖ **Photographs from plant and surroundings**
- ❖ **Black / white board**
- ❖ **Adequate copies of Formats as given in SEPP**
- ❖ **Up to date Communication lists and contact numbers**
- ❖ **Rubber / PVC & Canvas hand gloves**
- ❖ **Safety Helmets to Individuals**
- ❖ **Communication gadgets, P&T phone, fax, GSFC phone, internal phone.**

LIST OF EQUIPTMENT IN AMBULANCE

- ❖ Stretchers
- ❖ Bed, Pillows
- ❖ First Aid Box
- ❖ Oxygen Cylinder



LIST OF EQUIPMENT IN FIRST AID CENTRE

- ❖ Bed - One No.
- ❖ Treatment Cabin
- ❖ Water Tap & Sink
- ❖ Oxygen Apparatus - 2
- ❖ Stretchers
- ❖ Bandage of various types
- ❖ Antibiotic
- ❖ Various required medicines.

SAMPLE FORMATS

❖ FORMAT FOR DECLARATION OF SITE EMERGENCY EXERCISE

❖ Attention all plant personnel.

❖ Site Emergency exercise is being conducted at HWP, Baroda.

❖ There is describe briefly the incident, its location, affected areas and any other relevant information.....

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❖ Please note this is only an exercise.

❖ (to be repeated in Hindi and Gujarati)

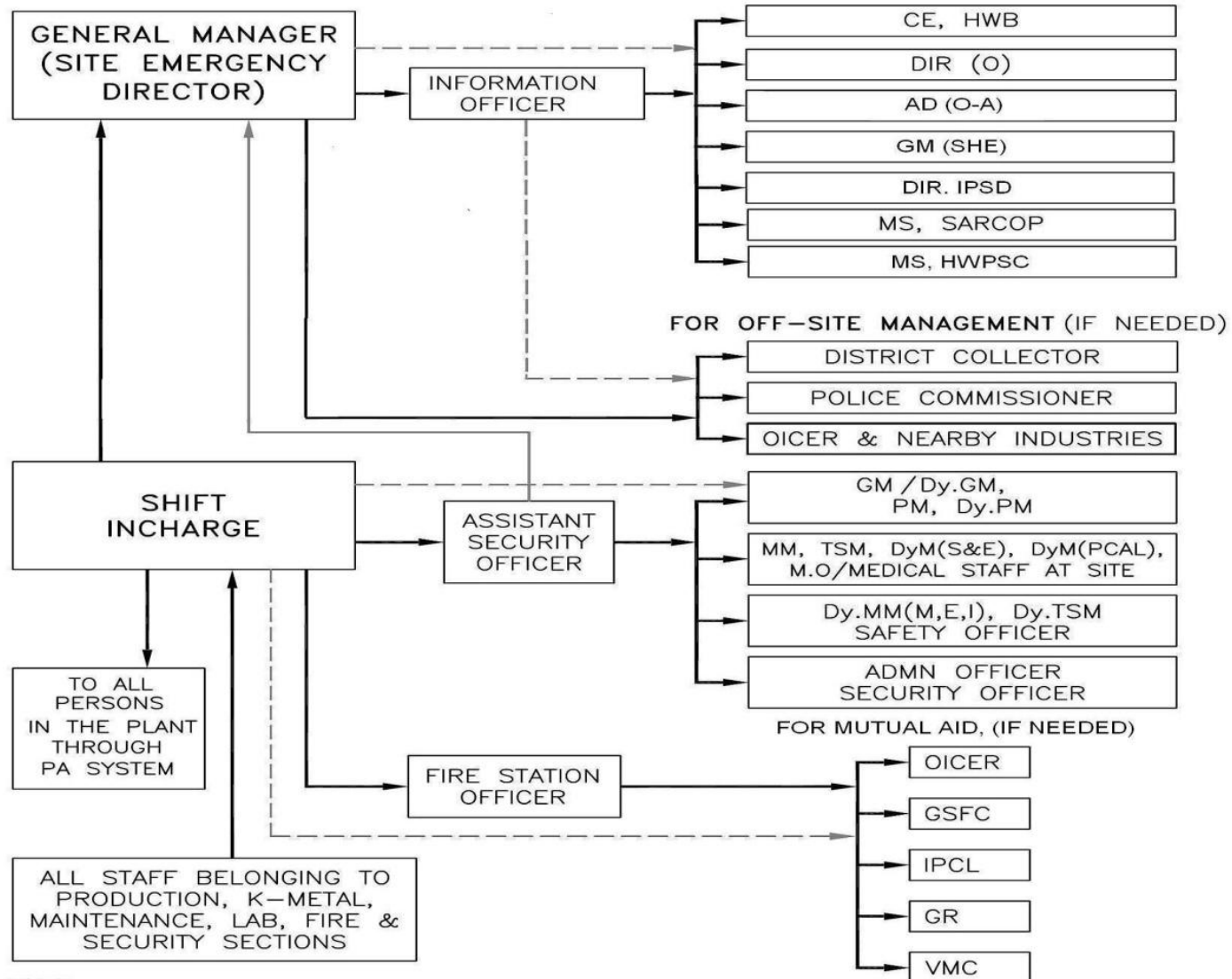
FORMAT FOR TERMINATION OF SITE EMERGENCY EXERCISE

- ❖ Attention all plant personnel.
- ❖ The Site Emergency exercise has been terminated.
- ❖ *(to be repeated in Hindi and Gujarati)*



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- ❖ Site Emergency is declared at HWP, Baroda.
 - ❖ Please note, this is emergency exercise only.
 - ❖ *(to be repeated in Hindi and Gujarati)*

**CHANNELS OF COMMUNICATION – INTIMATION OF EMERGENCY
– DECLARATION & TERMINATION**



NOTE:

1. ADDITIONALLY THE DUTY INCHARGES OF DIFFERENT SECTIONS AT SITE (MAINT., FIRE, MEDICAL, SAFETY, LAB) WILL ALSO INTIMATE THEIR SENIORS AT THE RESIDENCE.
2. ADDITIONALLY SECTION HEADS WILL INTIMATE OTHER REQUIRED OFFICIALS BELONGING TO THEIR SECTIONS.

LEGEND

- : NORMAL CHANNELS OF COMMUNICATION
- : ADDITIONAL CHANNELS OF COMMUNICATION TO BE USED FOR SECTION INTIMATION
- - - - - : OPTIONAL CHANNELS OF COMMUNICATION

Reference documents

- ❖ **MSIHC Rules, 1989 amended in 2000.**
- ❖ **AERB Safety Guideline no. AERB / SG / EP-3 titled "preparation of site emergency preparedness plans for non-nuclear installations" issued in August, 2000**

THANK YOU
THANK YOU



























