Disaster Management Plan

GUJARAT PIPAVAV PORT LIMITED

Department	HSSE	Document ID	SOP/HSSE/059
Prepared by	Approved by	Issue Date	Next Rev Date
Sr Manager HSSE	Head of HSSE Improvement	10-Jan-2023	10-Jan-2024

Table of Contents

1. Port Policy & Procedures

1.1. Purpose

The Gujarat Region is vulnerable to both natural and technological hazards. Natural hazards may include events such as earthquakes, severe weather etc. Technological or man-made incidents may include hazardous material spill (LPG), transportation accidents, bomb threats, explosions and fire. To respond to these possibilities, a comprehensive Disaster Management Plan (DMP) is needed. This section of that plan describes the Port's policies to which the Port Management and Emergency Response Managers will refer at the occurrence of a broad-based emergency.

For the purpose of these emergency-operating procedures, a major emergency or disaster is characterised as an unforeseen or unexpected combination of circumstances that call for immediate and extraordinary actions. In addition, we will define:

Major Emergency An event where there is reason to suspect that lives may be endangered or where severe damage to property may result. It is a situation where the ability to help oneself exists but additional help is needed. A major emergency may be from natural or technological causes. A moderate earthquake, a bomb threat, a limited LPG spill or fire are examples of major emergencies.

Major Disaster An event that causes widespread damage and/or threatens life and safety. The ability to respond with resources at hand is overwhelmed or suppressed; one can do little to help oneself. A "Major Disaster" may include a substantial earthquake or a major LPG release.

1.2. Policy

The Management of Port Pipavav is committed to establish policies and oversee all matters of operation of this organisation. However, as an emergency may occur at any time and, in all likelihood, without warning, it is prudent to have policies and procedures in place to assure the orderly operation and recovery of the Port in the absence of management's oversight. At such a time, as disaster management groups are able to reconvene, it is likely that, emergency recovery activities underway will be reviewed and modified as deemed appropriate by the management. Management of an emergency will lie with the COO or his designee. An organisation chart defining the emergency response organisation is found in Executive Policies and procedures.

It is fundamental to effective emergency preparedness that everything that can be practically done to minimise the likely effects of an emergency be accomplished before the emergency occurs. This includes buildings and facilities construction, storage planning and practices, developing policies and procedures, the education of Port personnel of appropriate actions during and following an emergency, and training of critical Port personnel for effective emergency response management
While it is expected that established policies and procedures will be adhered to, the responsibility for making decisions ultimately falls upon individuals. For this reason, a hierarchy of command is established for the Port Incident Commander and the administration of an emergency response (see Executive Policies and Procedures). Decisions effecting the execution of this plan are to be made by the highest-ranking individual who is available for counsel.

It is recognised that immediate decisions by Port personnel at various locations may be highly beneficial in reducing injuries and property loss. For this reason, broad discretionary powers bestowed to onsite managers. It is expected, however, that decisions will be in keeping with the "reasonable person" standard.

I. The Port's level of response will be commensurate with the present and potential impact(s) of the emergency. Not all emergencies are of the same scope. Further, the effects of an emergency (structure damage, for instance) may vary significantly from one area to another.

II. In the event of an emergency the COO (or his designee) will serve as the Port's Emergency Operations Coordinator. Serving the Emergency Operations Coordinator will be: -

A. Emergency - Executive Advisory Committee
1. Head of Container Operations
2. Head of Bulk Operations
3. Head of HSSE Improvement
4. Head of Administration
5. Head of Asset Maintenance
6. Harbour Master
7. Head of Legal
8. Head of Projects
9. Officers as requested by COO

Executive Advisory Committee will convene at BOD Conference Room or as directed by the Port's Emergency Operations Coordinator (COO)

B. Emergency Response Division

1.	Vishal Barve	: Sr. Manager (HSSE)
2.	Swaroop S Bhati	: Sr. Manager (Security)
3.	Prasad Walgude	: Sr. Manager (Cont Ops)
4.	Kaushik Oza	: Sr. Manager (Cont Ops)
5.	Bhaarat Pandya	: Sr. Manager (Bulk Ops)
6.	Amit Rathod	: Sr. Manager (Asset Maintenance)
7.	Hardik Pandya	: Sr. Manager (Asset Maintenance)
8.	Mukesh Bharad	: Manager (Asset Maintenance)
9.	Yatin Soni	: Manager (HSSE)
10.	Amit Kumar Singh	: Manager (Env)
11.	Ravi Srivastava	: Manager (Administration)

Emergency Response Division to convene at location as instructed by COO.

C. Marine Division

1. Harbour Master
2. Sr. Managers (Ops - Container & Bulk)
3. Sr. Manager (Asset Maintenance)
4. Pilots
5. Manager – Hydrography

Marine Division will meet at Marine building conference Room unless otherwise directed by the Harbour Master.

III PRIORITIES: Procedural decisions are to include consideration of the following:

- Public Safety
- The protection of the environment.
- The protection of property
- Restoration of an environment in which Port customers can conduct business.

IV. RESOURCES: COO will establish the priorities for allocation of Port resources.

V. COMMITMENTS: Port Pipavav intends to make every good faith effort to continue to honour contracts and commitments, which may be affected by an emergency.

VI. COMMUNICATIONS: Head of Communications will provide media and public information at the direction of the MD/COO.

VII. PERSONNEL POLICIES: COO may develop extraordinary policies to apply during the period of an emergency.

VIII. MUTUAL AID:
a. If necessary, COO may request assistance from other governmental entities, neighbouring industries or agencies or may retain private contractors as needed.
b. If requested, COO may take Port resources available to others severely impacted by an emergency provided such aid:
- Contributes substantially to the public safety.
- Will be of significant benefit to the public.
- Will not compromise the safety and welfare of Port employees, customers and members of the community.

IX. ASSISTANCE: As a matter of policy, Port personnel are not to solicit assistance from customers, tenants or visitors. There may be extreme conditions, however, where voluntary assistance will be of exceptional value and volunteer assistance may be received.

X. DECISIONS & RESPONSES during disaster will be based on:
a. The best information available at the time a decision and/or action is warranted.
b. Resources available at the time a decision and/or action is warranted

XI. ACKNOWLEDGEMENT OF LIMITATIONS
a. The management of Port Pipavav is committed to developing emergency preparedness plans that address:

- The safety and security of our employees, customers, visitors and members of the community.
- The protection of the environment.
- The protection of property.
- The orderly continuation of the mission of the Port
- The safe and orderly continuation of the business of our customers.

b. It must be recognised that it is virtually impossible to develop a plan, or set of plans, that will foresee and address all future events - particularly when the dynamics of a disaster are in play. For this reason, it is acknowledged that the Port plans may be less than perfect in their content or their execution.

c. It must be recognised that it is virtually impossible to develop a plan, or set of plans, that will foresee and address all future events - particularly when the dynamics of a disaster are in play. For this reason, it is acknowledged that the Port plans may be less than perfect in their content or their execution.

d. In the dynamics of a disaster or major emergency, factors beyond our control may limit the ability of the Port to provide a totally effective response to a widespread disaster.

XII.
Following an emergency, there will be a comprehensive review of policies and procedures to determine how this organisation can better respond to similar situations. Findings will be incorporated into revised Disaster Management Plans.

2. Resources – Equipment & Material Inventory

The following equipment and materials are available at Port to meet any emergency.

2.1. EQUIPMENT/MATERIAL

Fire Tenders-Two Nos.–
1.Fire tender (GJ14 M 3490)
- ☐ Water Capacity - 4000ltr
- ☐ Foam (AFFF) Capacity - 500ltr

2.Fire tender (GJ 14 T 4810)
- ☐ Water Capacity - 4000ltr
- ☐ Foam (ARFFF) Capacity - 500ltr.

Ambulances-
1. ICU on Wheel (GJ 14 T 9846) – At fire station
2. Ambulance (GJ 14 X 3254) – At fire station
3. Basic Ambulance ( ) – At ASK Office

Communication
a. VHF Handsets - 100nos (including Flame proof set-02)
b. VHF Base/Mobile stations - 12
c. Telephone/Intercom
d. LAN
e. Messengers

Cranes
a. 14 Tons Farana crane - One No. (Contracted)

Utilities
a. Forklifts - Three Nos. (Godrej-3 ton capacity)
b. Cherry picker (40 meter) - Two Nos.
c. Cherry picker (20 meter) - One No

Others
a. Manual winch (5 Tons) - One No.
b. Hydraulic Jack (10 Tons) - One No.
c. Aluminium ladders - Eight Nos. (Two sets with Electricals, Fire tender, containers and bulk dept)
d. Portable Pumps - Four Nos (Fire station)
e. Specialised suits-
   Fire entry suits - Two Nos at Fire Station
   Low temperature suit - One no at LPG jetty
   Proximity suit - 06 Nos.at Fire Station (01 each in Fire Tender)

f. Flammable gas detectors

Ultra-sensitive leak detector	- One no at Fire station
Oxygen Detector	- 01 Nos. at Fire station
Explosive Meter	- 01 Nos. at Fire station
Portable Ammonia Meter	- 01 No at Fire Station
Multi-gas Area Monitoring	- 01 No at Fire Station

g. Breathing apparatus - 10 Nos. (14 Nos. spare cylinder)

h. Portable Fire extinguishers are provided in the following areas:

- All the Cranes
- All the offices
- Liquid Jetty area
- Fuel station
- Warehouses
- Fertiliser Shed
- Canteens
- Township
- Gates
- Vehicles
- Substations

3. Contact Details

3.1. INTERNAL

Corporate Office		
Girish Aggarwal	MD	8378967240
Cheryl Dias	Office Manager	9820941178
Santosh Breed	CFO	9909953537
Amit Bhardwaj	CCO	9819740111
Nurjaha Arora	Head of Communication	9820776647
Manish Agnihotri	Company Secretary	9820082426
Kumar Divya	Head Commercial Bulk & Roro	8291889088
Ajay Verma	Head of Intermodal & Sales	9999977305
COO Office		
Capt P K Mishra	Chief Operating Office	9727608080
Dr Shailendra Gupta	CSR – Consultant	9824469993
Mukesh Dave	PRO	9824282777
HR & ER		
Sunil Suji	Head - HR, ER	9820505360
Kamini Gaur	HR Business Partner	9966019353
Admin		
Dinesh Pandya	Head of Admin	9824482125
Labour Pool Office	Pool	9714079992
Ravi Srivastava	Manager	9824577326
Kadu Gadiya	Manager	9824514034
Hitesh Jani	Manager – Hospitality	9824804966
Mansukh Kasundara	Manager – Motor Transport	9428867076
Ask Office	Admin	7698299981
Legal		
Ronak Kumavat	Head of Legal	9828096016
Devendra Pandya	Sr Officer – Legal	9824086047
Finance		
Santosh Breed	CFO	9909953537
	Head of Finance & A/c	
Dharmendra Shah	Sr Manager - Finance	7506128533
Marine		
Capt Ajay Kumar	Harbour Master	9904232200
Capt Ramesh Korlapu	Asst Harbour Master	7490919517
Capt Rajesh Singh	Asst Harbour Master	9167073506
Samit Nath	Manager	8155061235
Port Control	Radio Officers	9904086633

Project		
Jignesh Adhiyaru	Head of Projects	9727777121
Deepan Singh	Sr Manager	7698813118
Jagadeesha Y	Manager	9819172342
Jayesh Padaliya	Suptd, Contract Mgmt	9824577806

HSSE		
Sanjay Singh	Head of HSSE Imp.	9824451867
Vishal Barve	Sr. Manager – HSSE	9904148444
Yatin Soni	Manager – HSSE	9737811171
Superintendent HSSE	Superintendent HSSE	9824188298 6358999335
Fire Station	-	02794 302777
Emergency Number	-	**9924333333**
On Duty Doctor	-	9824832223
On Duty Paramedic	-	72 108 108 73
Medical Center	-	98248 52223
Amit Kumar Singh	Manager – Environment	9907054545
STP Shift Incharge	Environment	9714009680
Swaroop Singh Bhati	Sr Manager – Security	9714006270
Security Shift Leader	Security Shift Leader	9574109993
Security Desk	-	02794 302555
CCTV Room	-	9723554401
CCTV Room	-	02794 302513
ICT		
Victor Salve	Head of IT	7506071866
IT Helpdesk		9904807300
Rajkumar S S	Sr Manager – IT	9979546743
Kumarsinh Chavda	Manager	9275304045
Tushar Patel	Asst Manager	7046704627
Operations – BULK		
Sumanta Biswal	Head of Bulk Ops	9687696900
Bhaarat Pandya	Sr. Mgr - Ops Bulk	9824482725
Bulk Superintendent – Jetty	Shift Superintendent	9924504043
Bulk Suptd – Backup Fertili	Shift Superintendent	7698817115
Bulk Suptd – Bkp Coal & Min	Shift Superintendent	9824577489

Operations – CONTAINER		
PHILIP MONIS	Head of CONTAINERS	9100215558
KAUSHIK D OZA	SR. MANAGER	7698813114
PRASAD WALGUDE	SR. MANAGER	9821457966
KANTA PATIL	SR. MANAGER	7623808708
SHIFT MANAGER		02794-302678
SHIFT SUPERINTENDENT		9824577498
PRE – GATE		02794-302645
RMGC SUPERINTENDENT		9737989994
Planning Dept.		02794-302618
Gate Operations		02794-302634
Asset Maintenance		
Subir Mehrotra	Head of Asset Maint.	9824208616
Hardik Pandya	Equip Manager – Yard	9824852341
Amit S Rathod	Equip Manager – Jetty	9824577724
Adesing Baraiya	Equip Mgr (Reliability)	9723817609
Mukesh Bharad	Equip Mgr (Mobile, Bulk Boackup)	9824577726
Milton Velpandian	Planning Manager	8347753777
Niraj Modi	Manager (Engg)	7698813116
Rajesh Gandhi	Manager (Engg)	9824803561
Vijay Joliya	Asst Manager - Electrical	7698813115
Gajendra Pandhi	Asst Manager - RMGC	9714016999
Reefer Supervisor	Supervisor	9904490400
Reefer Technician	Technician	9824577472
Mechanical Shift Superviosr	Yard Supervisor	9824314521
Mechanic Shift Duty	Yard Technician	9824577328
RMG shift In-charge	RMG supervisor	8347912424
Jetty Shift In-charge	Shift In-charge	9824200896
Spreader Team		9904101938
Supervisor Engg	Supervisor (Engg)	9904302719
CFS Crane Operator	Crane Supervisor	9824095187
3 MG DG Set	Pool (GSM Phone)	9714089993
220 KV Substation	Pool (GSM Phone)	9714089994
11 KV Substation	Pool (GSM Phone)	9714049991
Electrical Shift Duty	Pool (Elect.Shift Duty)	9723764764
Saket Engineering Rep	Pool Bagging m/c Cont	9737654555
Engineering Pool	Pool	9824933434
Warehouse & Procurement		
Sajal Chakraborthy	Warehouse Manager	9824209784
Mahendra Jhala	Sr Officer – Stores	9904044611
Diesel Dispenser		9904294600
Vasundhara Lokhande	Manager Procurement	9769398492
Narendra Rawal	Asst Manager	9924788133
Ishwar Desai	Sr Buyer – Proc	9769874496

3.2. EXTERNAL

District Administration- Rajula (STD code-02794)

Designation	Office direct
Collector	+91 2792 222307
Dy. Collector & SDM Rajula	222001 Sdm-rajula-amr@gujarat.gov.in
Mamlatdar Rajula	222013 Mam-rajula@gujarat.gov.in
Chief Officer Rajula	222018
PSI Pipavav Marine	222077
SP Office Amreli	+91 2794 222 333 sp-amr@gujarat.gov.in
Amreli Control Room	+91 2794 223 498
PIPAVAV CUSTOMS	305858, 286113
District Emergency Response Center	+91 2792 1077 +91 2792 230735
Mamlatdar - Disaster	+91 2792 230735, 221600 dismgmt-amr@gujarat.gov.in

Doctors- Mahuva (STD Code 02844)

Name	Direct no.
Hanumant Hospital	**02844 – 22 4444**
Dr Umesh Joshi (Hanumant)	9408 706161
Dr. Bharat Gohil (Paediatric)	02844 – 22 3363
Dr. Bhavsar(ENT)	02844 – 22 7651
Dr. Bhoot(MD)	02844 – 22 3522
Dr. Bhutak (Ortho)	02844 – 22 2460
Dr.Virani(Dental)	02844 – 22 2177
Dr. Dholakiya(Eye)	02844 – 22 2220
Civil Hospital	02844 – 22 2431

Doctors- Rajula (STD code 02794)

Name	Direct no.
Dr. Khuman	02794 – 22 2097
Dr. Muchadiya	02794 – 22 2500
Dr. Nirmal	02794 – 22 2482
Dr. Timaniya	02794 – 22 0045
Dr.Vaghamsi	02794 – 22 0598
Dr. V R Patel	02794 – 22 2106
Dr. Vipul Mehta	02794 – 22 0043
Civil Hospital	02794 – 22 2033

CONTACT DETAILS OF LIQUID/RORO TERMINALS

Aegis Gas (LPG) Pvt Ltd	Venkata Butchaiah Rajender Kumar Security Dinesh Singhania (Sr – VP)	9992375511 78733 90312 70465 66648 76980 66622
IMC Terminal	Harish Vyas Pankaj Zinzuwadia	94272 09086 96876 40115 98985 00278
Gulf Petrochem	Ajit Tiwari Pawan Sharma Bhavin Aghera	8828313478 7354407445 9909947113
NYK	Krutarth Ambaliya Terminal Manager Chintan Raghani Madhav Bodke Mumbai	7573044590 97376 02747 08879632958

4. Co-ordination with external resources

4.1. Purpose

The Port Pipavav is not immune to any natural or manmade disasters, which have the potential to create casualties, cause damage and disrupt Port operations. It would not be uncommon for a cascading effect to occur, i.e., where one major emergency produces one or more additional secondary emergencies. As a result, more than one situation may develop and may require attention:

☐ Local government authorities/industries may need and request assistance from Port Pipavav.

☐ Port resources may be severely impacted by the event that would necessitate the Port to seek outside assistance

This section of the Port Pipavav DMP discusses the coordination of the Port with outside agencies and contractors to respond to major emergencies and disasters in order to meet these needs.

4.2. Policy

To protect the life, property, and environment and to restore the Port operation, Port Pipavav is committed to providing emergency preparedness plans that address the needs resulting from a major emergency. If requested, and in keeping with established policies, Port resources may be made available to entities severely impacted by an emergency. In the event it becomes necessary to seek outside assistance, The Port may request such aid from external resources. These could include mutual aid with neighbouring industries, Government agencies and through pre-existing contractual agreements with private contractors. The Head of Departments are provided extraordinary powers to enter into contracts and an agreement with outside contractors at the time of a major disaster and as the need arises under instructions and knowledge of COO.

4.3. Guidelines

Port Pipavav is adequately prepared and has ample resources, or access to sufficient resources, to adequately handle emergencies. However a major emergency or disaster would throw the Port operations and systems out of gear and could require outside assistance from local/state/central agencies, neighbouring industries and contractors.

As needs become evident, The COO will:

☐ Request and utilise Port resources (Fire, Security, Maintenance etc.)

☐ Request the neighbouring industries to render assistance.

☐ Seek assistance from Local/state/central government agencies.

☐ Bring in private contractors as needed with due consideration to pre-existing contractual arrangements.

In the event, local authorities request for Port's assistance in tackling any major emergency, COO may make Port resources available, provided such aid:

☐ Contributes substantially to the public safety
☐ Will be of substantial benefit to the public
☐ Will not compromise the safety and welfare of Port employees and customers.

5. Port Layout

6. Siren Pattern for Emergency

Raising the alarm is first step in implementation of emergency plan/ Disaster management plan. The alarms are basically used to notify the people within the port of an impending disaster or an event, which is likely to take the shape of a disaster.

In case of any enquiry on sounding of the alarm, the Fire Station or Port Control Room may be contacted. The Fire Station/port control room becomes a nerve centre of flow of information in emergency hence any required information to be limited to the emergency only.

As per the requirement, the sirens installed on the fire tender can also be used. For information of the people the PA system installed on the fire tender can also be used.

The following siren patterns have been considered for different emergencies.

Emergency Siren	**Wailing Siren for 2 Minutes**
Major Disaster	**3 Times Wailing Siren for 2 minutes at interval of 1 Minute**
All clear	**Straight Run Siren for 2 Minutes**

In case of cyclone the appropriate flags to be hoisted during the day and lights at night as given in the chapter 16.

7. Safe assembly point/location

A single point assembly is important to avoid any chaos and casualty during emergency.

Some of the assembly points have been identified for safety of the personnel.

Assembly Point	Location
1	LPG Jetty Approach
2	Approach-05
3	Approach-04
4	Approach-03
5	Approach-02
6	Approach-01
7	Marine Building
8	BOD Gate
9	Fertilizer Shed – IN
10	RMGC Gate
11	Pre Gate OUT
12	Pre Gate IN
13	220 KV Substation
14	Engineering Work-Shop
15	New Mess
16	Store / Warehouse
17	New Office Building
18	Club House
19	New Colony
20	Old Colony
21	Fertiliser Shed OUT
22	Container Scanner

SR. NO	NATURE OF EMERGENCY	ASSEMBLY POINT
1	Emergency at colony area	Open area.
2	Tidal Wave during cyclone	Roof top of new buildings at Port Colony
3	Tsunami	Roof top of new buildings at Port Colony
4	Flood – Helicopter pick up location for Customs Bonded Area	Marine Building Roof
5	Flood – Helicopter pick up location at Port Colony	Roof top of new buildings at Port Colony
6	Storm with Gale force winds	Everybody will be inside the house.
7	Earthquake – CB Area	Open area between Road and Temp Coal Yard

8	Earthquake – Port Colony	Open area (Play Ground) in Colony.
9	Earthquake – BOD Complex	Open area in between BOD and Fire Station

The assembly points and accesses should be always free of vehicular traffic and parking.

8. Fire in equipment/facility

A structural fire incident is described as the destruction or partial destruction by fire of a building or its contents. The spread of fire can be very fast. Prompt and well-directed action can be decisive in escaping a major fire loss. The biggest single need usually is not personnel and equipment. Most often it is the ability to respond quickly and to confine the fire to manageable limits before it reaches the disaster stage.

As soon as the Fire Department arrives at the site, they will take charge of the situation and manage the emergency operations as long as a fire condition exists, or safety of life is involved.

Following action are needed to be taken quickly by

8.1. Responsibilities

Fire & Safety Department;

- Evaluate the situation
- Determine equipment and manpower needs.
- Confine the fire to a minimum area possible
- Reduce or negate structural damage and risk to persons
- Conduct rescue operations
- Conduct Fire Investigation to determine point of origin and cause.
- Collection of damage report from concerned dept, and forwarding the same along with fire report to COO.

Administration Department

- Notification to appropriate authorities for any assistance required.
- Arrange for Medical assistance
- Arrangement of transport for manpower and equipment movement.

Other departments

- Assessment of Damage
- Facilitate in returning structures/equipment/facility back to service as soon as possible
- Forwarding the extent of damage to Head of HSSE Improvement.

8.2. Guidelines

1. Sound Alarm (shout 'FIRE, FIRE, FIRE') to call attention of other people.
2. Call up Fire station extension 2777 / 2778 or cell number 9924333333
3. Provide the following information clearly
    - Your Name & Extension number

- Exact location of fire.
- The extent of fire
- Hazardous materials if any, near the vicinity, if known
- Any other information required

4. Have someone familiar with the building/facility and the mechanical systems accessible as a resource.
5. If possible and can do safely attempt to extinguish or contain fire with the extinguisher available.
6. If your clothes catch fire
   - Do not run
   - Stop, drop to the ground and roll to smother the fire
   - Do not try to put off the fire with your hand
7. Evacuate the immediate vicinity through nearest and safest exit and assemble in the adjacent open area minimum 100m away.
8. Keep out of the way of Fire fighters and away from falling debris and glass.
   - If injuries have occurred, arrange to transfer the victim to dispensary.
   - Take action to shut off electrical power to affected area, provided illumination is not an overriding factor.
11. Do not try do things which you are not familiar with.

8.3. Use of Fire Extinguishers

Fire extinguishers if used properly can save lives and property by putting out a small fire in the work place or containing one until the fire Department arrives. It is essential that designated employees be familiar with the proper use of portable fire extinguishers and know when and when not to use them. Portable fire extinguishers discharge faster than most people think - many within one minute.

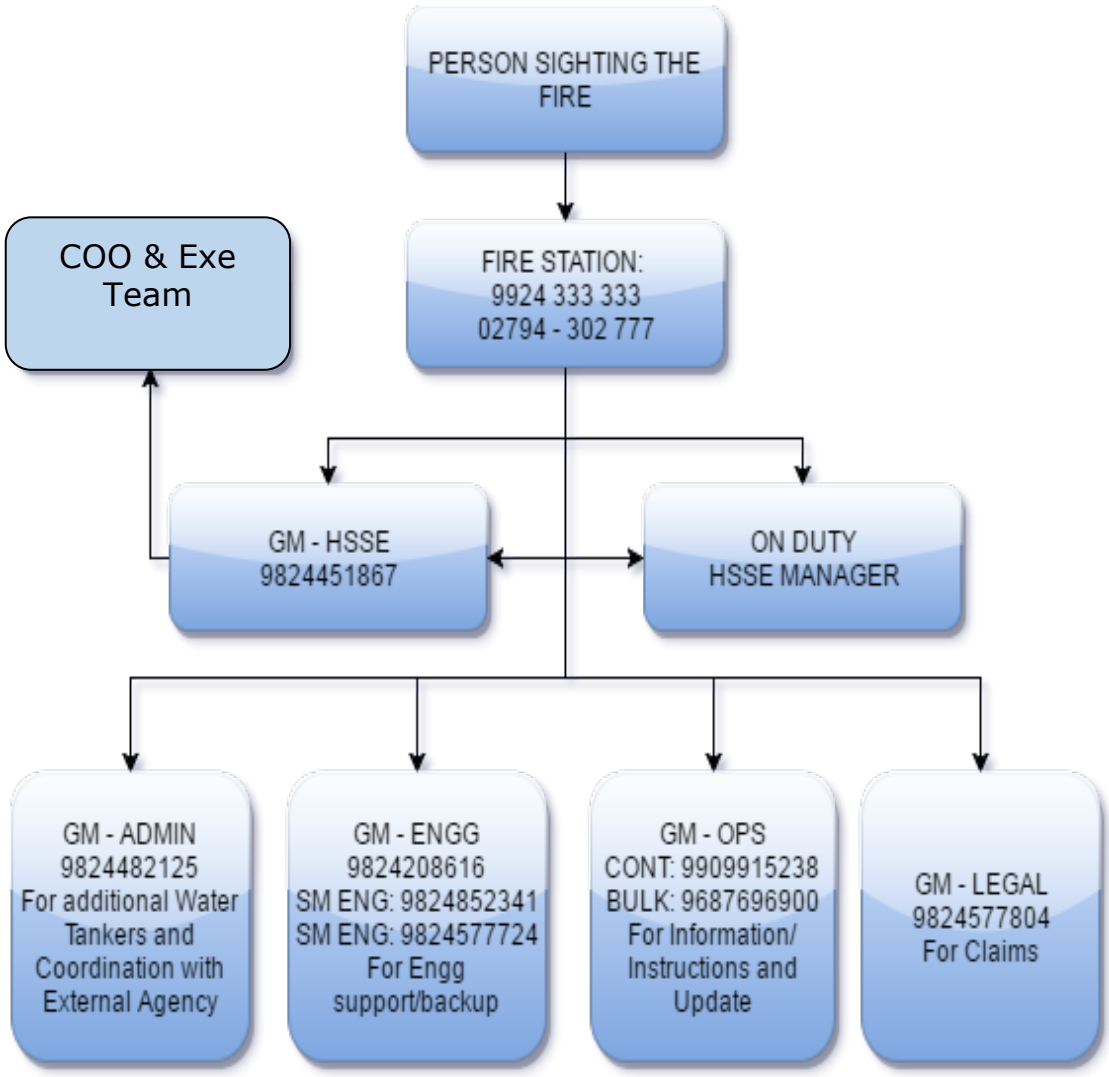
Before fighting a fire in the work place with portable fire extinguisher: -

- Be sure the fire is small enough to be extinguished with a portable fire extinguisher.
- Find what is burning and be sure the extinguisher you intend to use is suitable for that fire.
- Consider the possible danger posed by hazardous or highly flammable materials near the fire area.
- Know how to operate your fire extinguisher and know the proper technique for fighting small fires.
- Make sure you have an unobstructed escape route to use should you fail to extinguish the fire.

Emergency telephone numbers in case of Fire

Emergency No : 9924 333 333, 02794 – 302777, Ext No 2777
Port control room : 9904 086 633, 02794 – 302666, Ext No 2666
Head of HSSE : 9824 451 867, 02794 – 302490, Ext No 2490

8.4. FLOW OF INFORMATION IN CASE OF FIRE

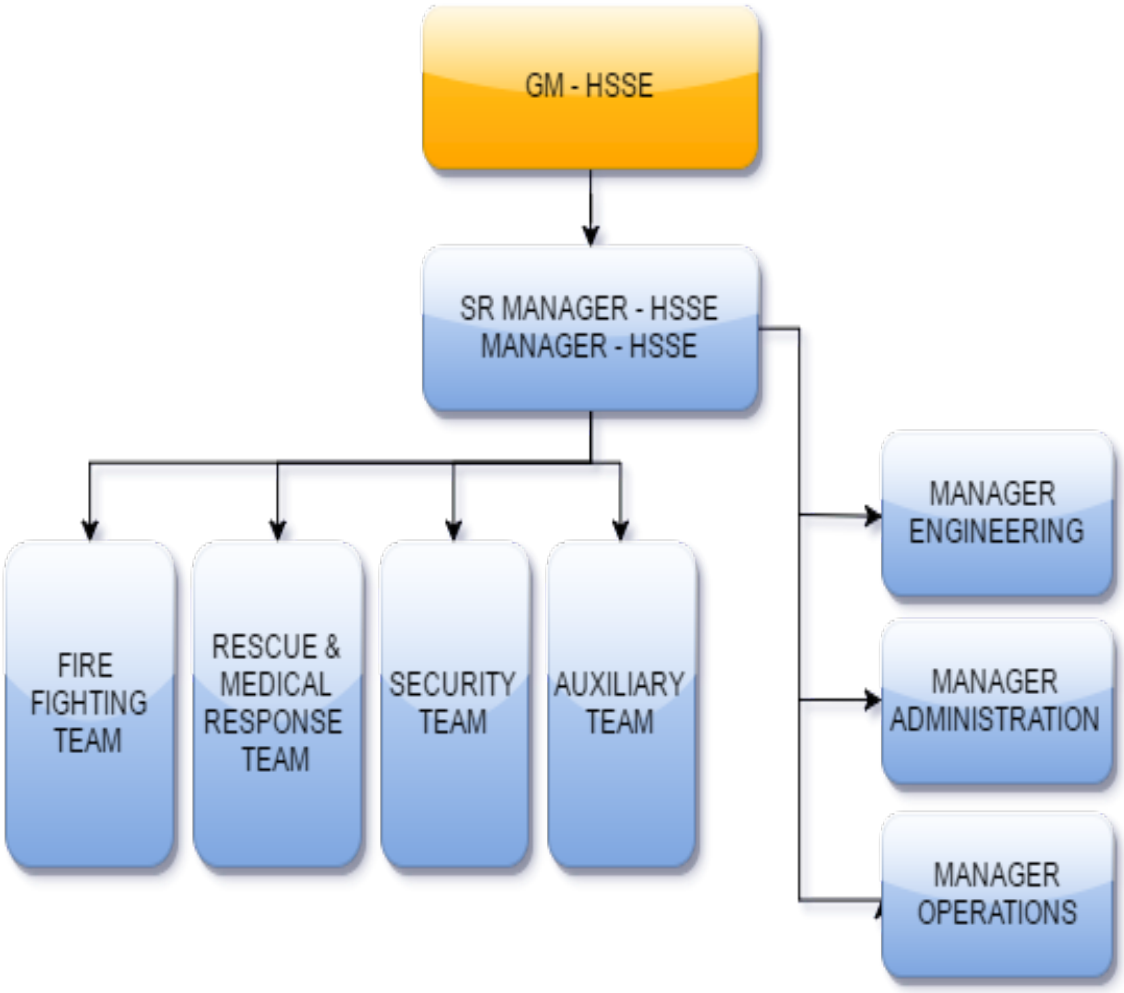


8.5. Report and Investigation

Sr Manager (HSSE) to forward a detailed report on the cause of fire, fire fighting and extent of damage due to fire to the following:

- COO
- Head of Cont Ops
- Head of Bulk Ops
- Head of HSSE Improvement

8.6. COMMAND CHART


GM - HSSE
SR MANAGER - HSSE
MANAGER - HSSE
FIRE FIGHTING TEAM
RESCUE & MEDICAL RESPONSE TEAM
SECURITY TEAM
AUXILIARY TEAM
MANAGER ENGINEERING
MANAGER ADMINISTRATION
MANAGER OPERATIONS

9. Earthquakes

9.1. Background

- Gujarat is in the "Himalayan Collision Zone"-where Indo-Australian tectonic plate slides under Eurasian plate-causing active fault lines beneath.
- The Vulnerability Atlas of India (BMTPC, 1997) classifies Gujarat into four classes based on a base of 10.3 million buildings recorded in the 1991 Census and BIS standard (IS: 1893 1984).
- The proportion of area in Gujarat that falls into these (MSK Intensity Scale) zones is as follows:
  - Very High Risk: >MSK IX (19 percent)
  - High: MSK VIII (13 percent)
  - Moderate: MSK VII (66 percent)
  - Low Damage: <= MSK VI (1 percent)
- Kutch District located in Very High Risk Seismic Zone – V.
- Parts of Jamnagar, Rajkot, Patan and Banaskantha in High Risk Zone – IV.
- Most other parts of the State lie in Moderate Zone - III and a very small part in Low Damage Zone – II.
- Earthquake risk is very high in Gujarat and the State has suffered major earthquakes in - 1819, 1845, 1847, 1848, 1864, 1903, 1938, 1956 & 2001 (9 times in past 200 years). The 2001 Kachchh earthquake was the third largest and second most destructive earthquake in India over the last two centuries.

9.2. Earthquake Hazard Maps

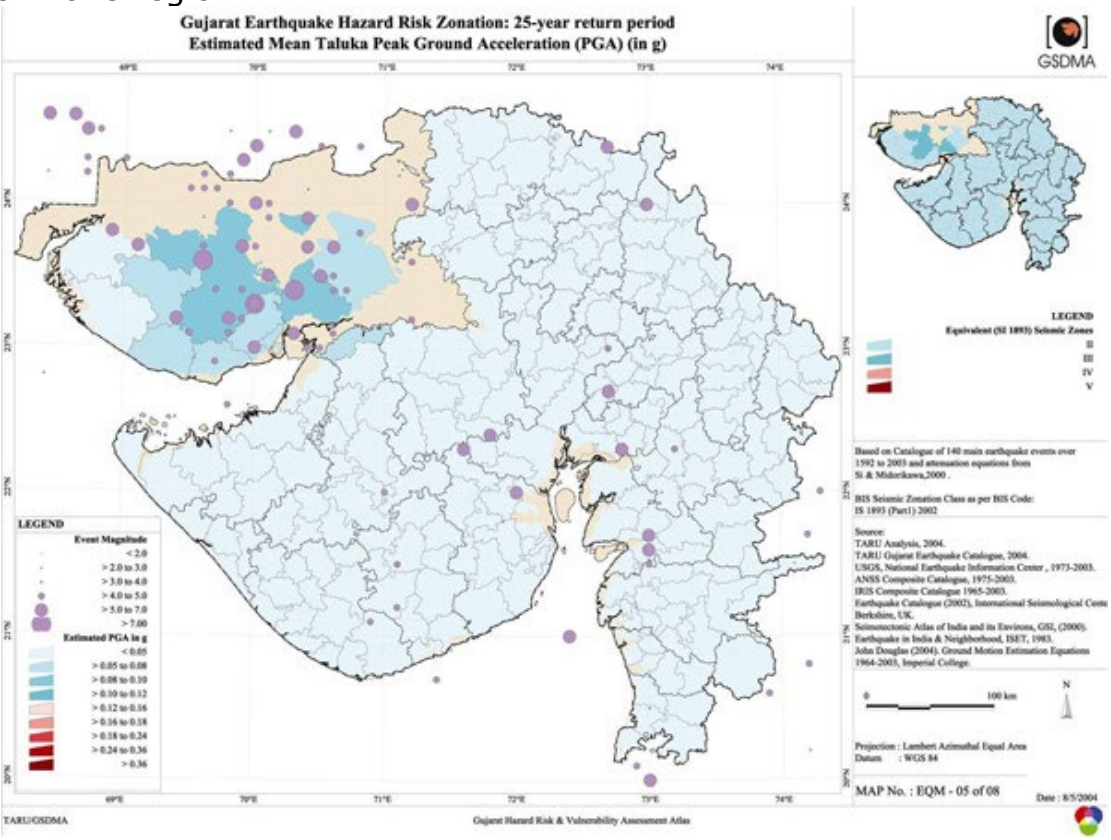
- In order to provide a guiding framework to undertake mitigation investments and activities, GSDMA initiated a study for preparation of a Composite Hazard Risk & Vulnerability Atlas for the State covering six natural and man-made hazards and the physical, social and economic vulnerability of its people, assets and economy at Taluka-level. The hazards that have been examined in detail using advanced computer assisted GIS models, probabilistic analysis and detailed field studies include: earthquake, cyclone, storm surge, flood, chemical accident exposure (between 25 and 200 year return period), and importantly for Gujarat – drought, over a period of a century.

- Based on the seismic risk expedience probability database - four Earthquake Hazard Risk Maps (for 25, 50, 100 and 200-year return periods) were created at PGA values defined based on IS: 1893 (Part1) 2002 classes.

- Earthquake Hazard Risk Zonation Maps for a return period of 25 years, 50 years, 100 years and 200 years already available in the old website could be uploaded on this page with a brief description of each Map as shown below

GUJARAT HAZARD RISK ZONATION: 25-YEAR RETURN PERIOD ESTIMATED MEAN TALUKA PGA (IN G)

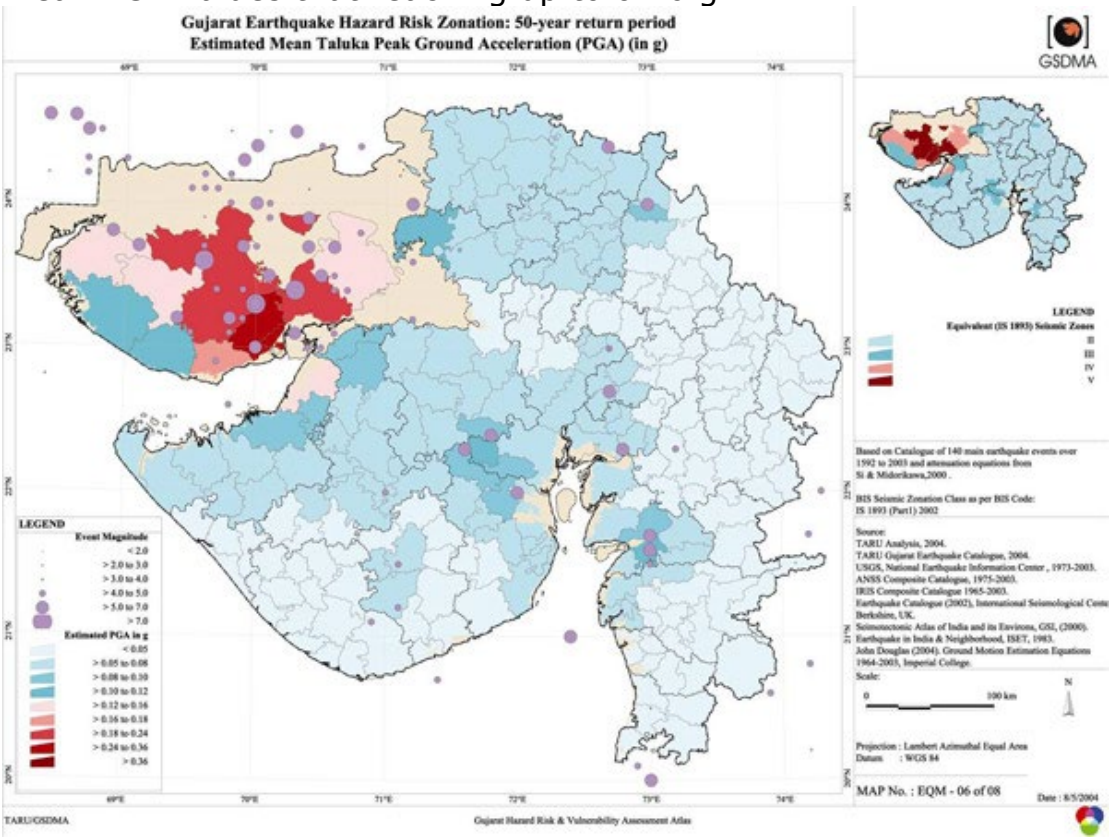
The estimated mean Taluka PGA (in g) zonation for a 25-year return period is presented in the below figure. The location and magnitude of major events is also located on the map to assist in identifying key driving factors for the zonation. Kachchh district has two pockets of low to moderate intensity with the maximum estimated PGA values between 0.05 to 0.10 g. This is primarily because of the large number of relatively frequent low magnitude events in this region.



GUJARAT HAZARD RISK ZONATION: 50-YEAR RETURN PERIOD ESTIMATED MEAN TALUKA PGA (IN G)

The estimated mean Taluka PGA (in g) zonation for a 50-year return period is presented in the below figure. This zonation would typically be used for the design of houses and much of the non-engineered building stock that would need to have a mean design service life of 50 years. Four moderate to very high intensity pockets are located in

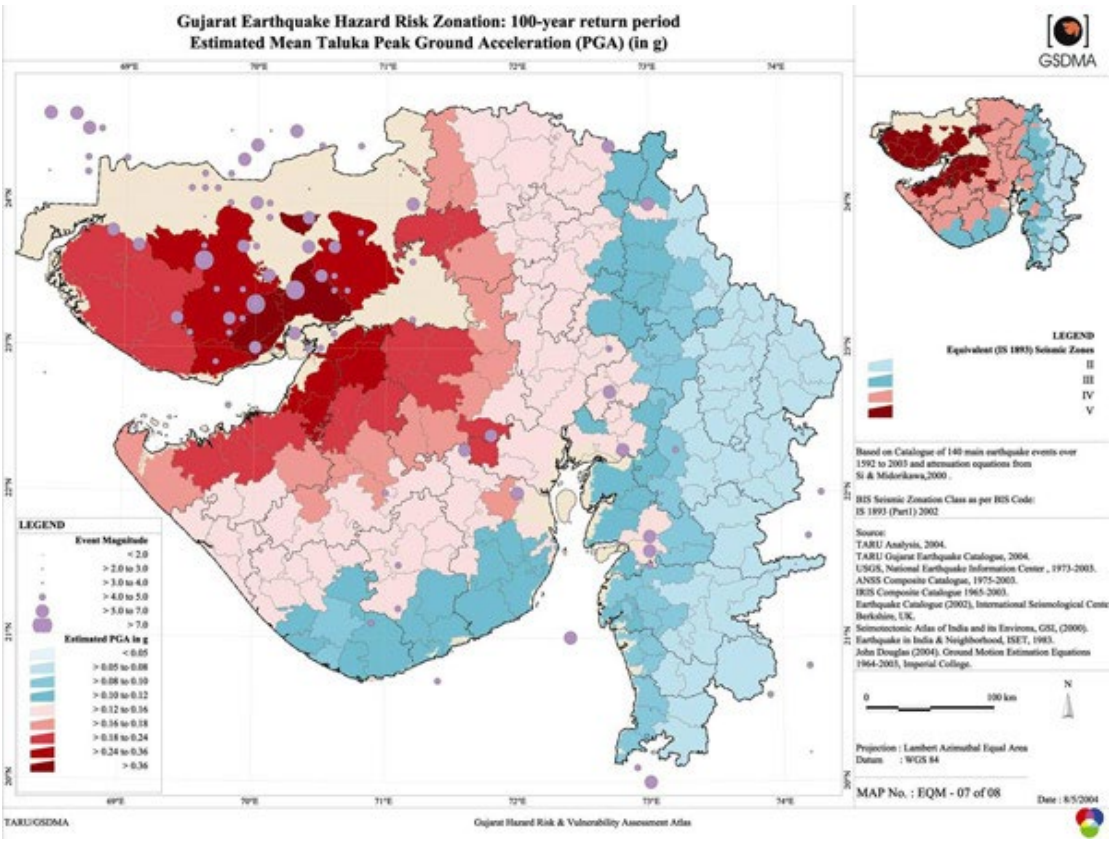
Kachchh and north coastal Rajkot and Jamnagar districts clustered around the major events in this region – the 1956 Anjar earthquake and the 2001 Kachchh earthquake with a peak PGA value in excess of 0.36 g. Five moderate intensity pockets emerge in Baruch, Bhavnagar, Sabarkantha districts and north coastal Saurashtra with mean PGA values that reaching up to 0.16 g.



GUJARAT HAZARD RISK ZONATION: 100-YEAR RETURN PERIOD ESTIMATED MEAN TALUKA PGA (IN G)

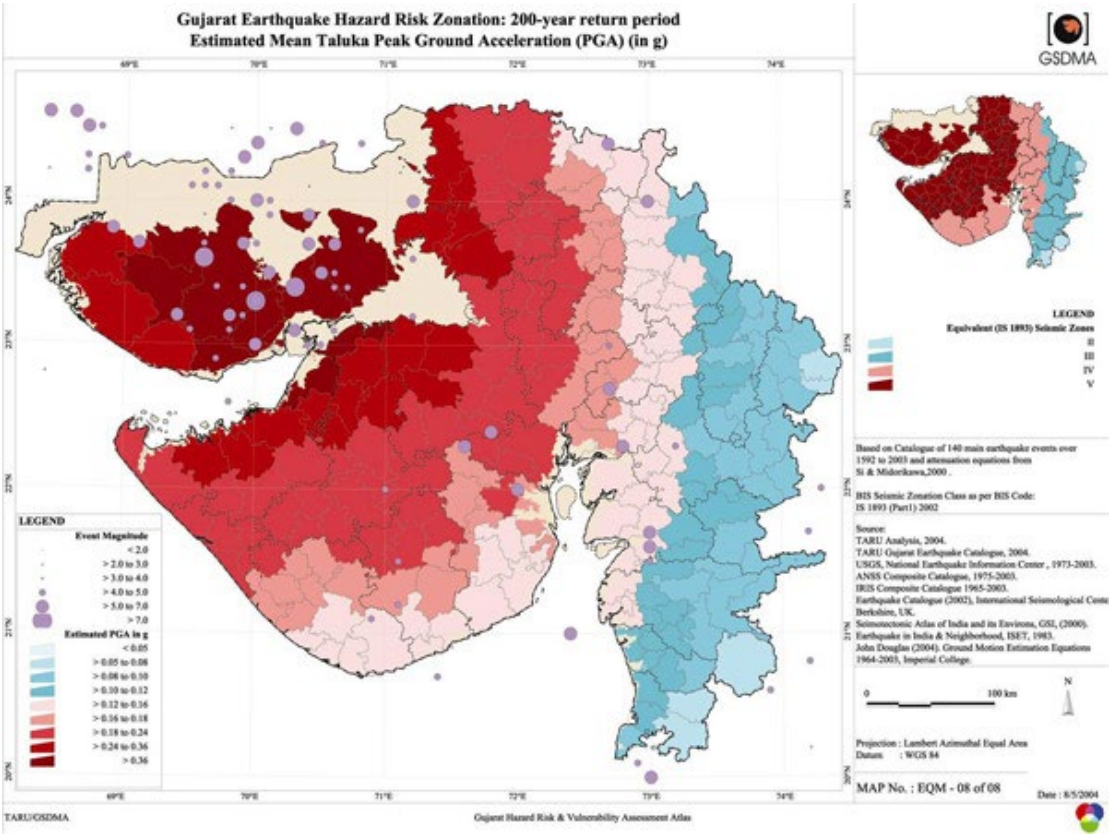
The estimated mean Taluka PGA (in g) zonation for a 100-year return period is presented in the below figure. This zonation would typically be used for the design of critical buildings that need to have a mean design service life of 100 years. All of Kachchh, almost the entire coastline of northern Saurashtra that adjoins Kachchh and a small area in Patan district fall into the very severe intensity zone over a 100-year return period. This closely follows the pattern of damage that was observed in the 2001 Kachchh earthquake. The severe intensity zone extends in a broad sweep from north Gujarat, through central Gujarat and much of central Saurashtra. The cities of Ahmedabad, Baruch, Rajkot, and Bhavnagar fall into the severe intensity zone, while Bhuj and Jamnagar fall in the very severe intensity zone over this time frame. The boundaries of key structural features emerge in this zonation map with the broad boundaries of the Cambay Graben and the eastern hilly region emerging due a mix of the influence of active faults, distance from historical events and

ground amplification due to the deep alluvium within the basins. The eastern hilly region of Gujarat consists of stable Granatoids and Basalt has relatively low estimated intensities – a departure from seismic zonation under the current revision of IS:1893.



GUJARAT HAZARD RISK ZONATION: 200-YEAR RETURN PERIOD ESTIMATED MEAN TALUKA PGA (IN G)

The estimated mean Taluka PGA (in g) zonation for a 200-year return period is presented in the below figure. This zonation would typically be used for the design of critical infrastructure and buildings that need to have a mean design service life of 200 years. All of Kachchh, much of Northern, part of Central and all of North coastal Saurashtra falls into the very severe intensity zone. Eastern Gujarat (except for small pockets in Dahod and Dangs districts) rises to moderate intensity, while the rest of north, central Gujarat and south coastal Saurashtra falls into the severe intensity zone. All the major cities of Gujarat fall either into the very severe or severe intensity zone, except for Valsad, Vapi and Navsari in south Gujarat.



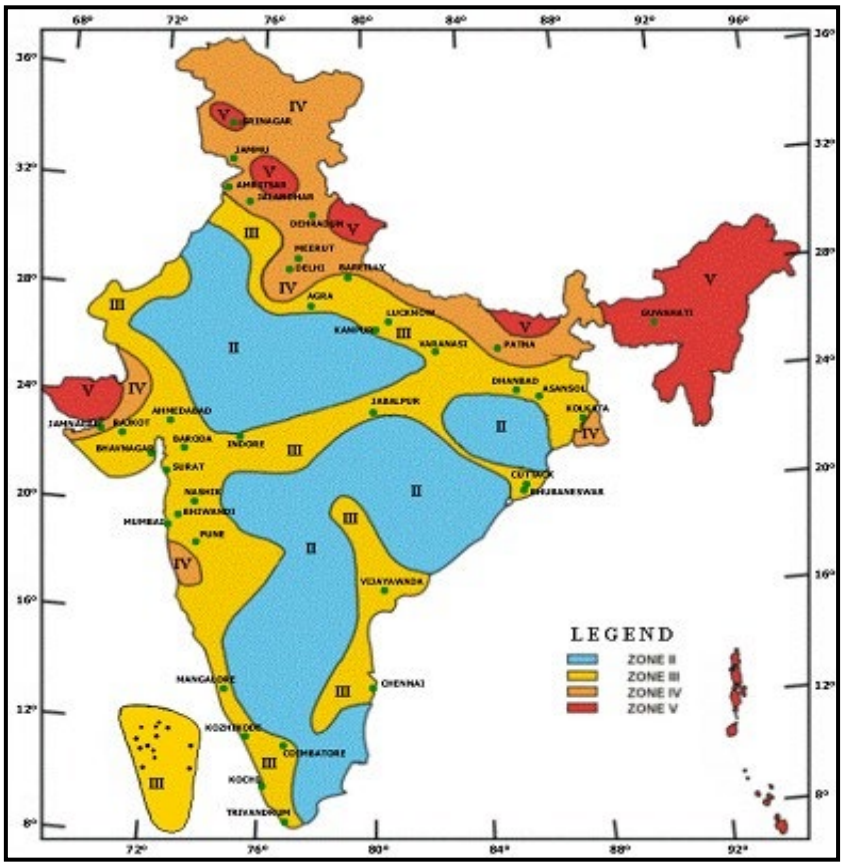
9.3. SEISMIC ZONING MAP

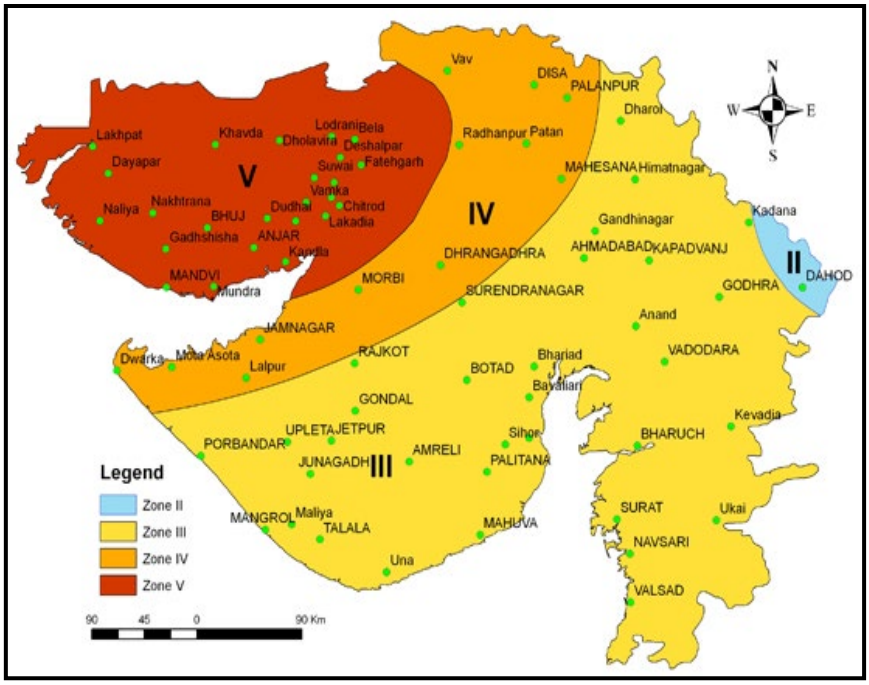
It is well known that the Gujarat region is one of the geologically unstable parts of the country. Some devastating earthquakes of the world have occurred in this area. Port Pipavav falls in seismic zone III which means this area is liable to seismic intensity VII on Modified Mercalli Intensity Scale and this is termed as Moderate Damage Risk Zone (Intensity refers to the effect of earthquake. Modified Mercalli Scale is the standard measurement)

It is fundamental to effective earthquake preparedness that everything that can be practically done to minimise the likely effects of an earthquake be accomplished before an earthquake occurs. This includes building and facilities construction, storage planning and practices, and educating Port Pipavav personnel of appropriate actions when an earthquake occurs. This document deals with policies and procedures following an earthquake.

Not all earthquakes are of the same magnitude. Further, the effects of an earthquake (including structure damage) may vary significantly from one area to another. This may be due to differences in distance from the epicentre of the earthquake, difference in geology, differences in topography, or differences in building construction. For these reasons, at the occasion of an earthquake, it will be incumbent

on civil department to determine the level of response at each site, which is appropriate.





For the Initial Assessment purposes earthquakes will be categorised at three levels;

Level I	A slight tremor is felt. Window shades swing and perhaps some small objects fall from desks etc. It appears unlikely that there is significant damage.
Level II	The shaking is quite noticeable. Pictures are askew and things topple from desks and bookshelves. Some windows may crack. Damage though noticeable, appears to be minor in nature.
Level III	This is the major one. It may difficult to walk. Items fall; cupboards, shelves etc. will topple. Power lines sway violently. Structural damage to buildings.

Most earthquakes will fall in the Level I category. In such cases stay calm and communicate with those around you. The Managers/supervisors should report to COO of the event and the initial assessment. Keep in mind that; this could be a precursor of a larger quake. The likelihood of this is less but this possibility should not be dismissed. This would be a good time to search your work area for heavy or dangerous objects that could cause injury should they fall in a great tremor.

A Level II earthquake needs some action. Even though there may appear to be little or no damage, there may be problems about which you may not be immediately aware (such as broken gas lines, damaged wiring, structural damage etc.). Therefore, a Level II earthquake calls for an orderly evacuation of the building until inspections indicate it is safe to re-enter. In this case the senior responsible person (one who would be the Site Incident Commander in the event of a Level III earthquake) should conduct an inspection of the building and its systems to confirm a safe environment. Once successfully completed, employees will be advised to return to work. As with Level I tremors, This could be the precursor of a larger quake and this would be a good time to search your work area for heavy or dangerous objects that could cause injury should they become unstable in a great tremor.

The following procedures are provided as a guideline to Port Pipavav personnel in attendance at the occasion of a level III quake. This will be a seismic event in which the shaking is substantial and damage is likely, if not apparent. Response organisation is divided in a chronological priority with activities prioritised secondarily.

9.4. Procedure (During the earthquake) – Container yard

- Employees/Security staff to move 50 mtrs away from container stacks, aftershocks should be expected after the first tremor hence works to be resumed at yard only after go-ahead signal from Head of Cont. Ops.
- RTGs to be in parking position and if a container hanging on spreader has to be brought down on ground.
- ALL TTs to be moved away at parking slot *(TT Parking Area)*.
- No TT entry at the time of tremor.
- No person below RTG, container stack and electrical pole.

9.5. Procedure (After the earthquake) – Container yard

Following assessment team will visit site before resuming work at the yard.

Head of Container Ops - Visual inspection of the yard for inspecting collapse of stack and coordinating rescue/fire with HSSE.

Head of Asset Maintenance - Inspection/assessment of damage to yard/ equipment.

Sr. Manager (Engineering) – Will assist Head of Asset Maint and Head of Operations in arranging equipment/tools and manpower required for carrying out assessment/rescue.

Sr. Manager (Ops) - Coordinate with Head of Operations for requirement of manpower, equipment and yard census.

Sr. Manager (HSSE) - Coordinate with Head of Asset Maint and Head of Operations for rescue/Firefighting at the yard. Firemen, firefighting and rescue equipment on standby for immediate deployment. Preparing damage/fire report if any and forwarding it to senior management.

9.6. Procedure (During the earthquake) – Quay Side.

- All operation to stop.
- Gantry crane trolley to be moved to land side.
- Gantry to be in rail clamped.
- Any hanging container to be grounded and freed from spreader lock.
- All persons/labours on quay to move at the jetty approach entrance till further instruction of resuming work is given by Head of Container/Bulk Ops.

- All person /Labour on vessel to move to the muster station of the vessel.
- Lashing gang on vessel to move to muster station of the vessel.
- Employees/lashing gang on vessel should not disembark from vessel during shock. Disembarking to be done after instruction is given to vessel supervisor by Sr Manager (Ops) on confirmation from Head of Container/ Bulk Ops.
- Crane operators-RMQC, Gottwald and B M Titans-To be seated in their cabin.
- Bulk vessel crane operation to be stopped, no unloading discharging till orders are given by Head of Bulk Ops for resuming work.

9.7. Procedure (After the earthquake) – Quay Side.

Work at quay side will only resume on instruction received from Head of Container and Bulk Ops

Following damage assessment team will visit quay side for assessment /inspection of damage.

Head of Container and Bulk Ops - Visual inspection of the quay for inspecting collapse of stack if any on vessel, damage to quay and coordinating rescue/fire with Sr. Manager(Safety).

Head of Asset Maintenance - Inspection/assessment of damage to quay and quay cranes.

Sr. Manager (Engg)-Will assist Head of Asset Maintenance and Head of Operations in arranging equipment/tools and manpower required for carrying out assessment/rescue.

Sr. Manager (Container and Bulk Ops) - Coordinate with Head of (Container and Bulk Ops)) for requirement of manpower, equipment and yard inventory.

Head of HSSE Improvement - Coordinate with Head of Asset Maint and Head of Operations for rescue/Firefighting if required. Firemen, firefighting and rescue equipment on standby for immediate deployment. Preparing damage/fire report if any and forwarding it to senior management. Security at approaches not to allow any person/equipment to enter the quay inside custom gate area post tremor unless permission by Heads (Con and Bulk Ops)) is granted for resuming work.

Harbour Master- In the event of vessel has to be moved to anchorage it has to be done in consultation with Head of Cont and Bulk Ops)) as channel depth will have to be checked prior any vessel movement in out of the channel.

9.8. Procedure (During the earthquake) – Liquid Berth

- If tremors are felt during vessel operation, vessel ESD and shore ESD to be immediately operated to stop cargo discharge operation.
- Terminal managers to be intimated to close plant side valve.
- All persons at berth to move outside Liquid berth entry.
- Unloading hose to be disconnected from vessel.

9.9. Procedure (After the earthquake) – Liquid berth

Following damage assessment team will visit site for assessment damage if any to quay, firefighting system, LPG/Liquid pipeline, electrical system, Fire water storage tank and pump house.

Damage assessment team will move to Liquid jetty after confirmation from Sr. Manager (HSSE) of no LPG leakage at birth.

Complete pipeline between berth and Terminals to be inspected with leak detector and explosive meter. In case of leakage from LPG pipeline Aegis gas leak control kit to be deployed.

In the event of leakage of LPG from pipeline all operation all operation within 500 mtrs from leakage to be stopped. Entry to personnel at leagake site will be restricted to Safety and Aegis gas staff only.

Leak control operation to be carried out under supervision of Sr Manager (HSSE) and Terminal Manager (Aegis gas).

In the event of leakage of Liquid cargo from pipeline all operation all operation within 60 mtrs from leakage to be stopped. Entry to personnel at leagake site will be restricted to Safety and Terminal staff only.

Leak control operation to be carried out under supervision of Sr Manager (HSSE) and Terminal Manager of respective facility.

Harbour Master- Will assess damage to quay/quay fittings.

Head of Asset Maintenance - Structural assessment along with Harbour Master)

Head of HSSE Improvement - Coordinating with Oil Terminals for firefighting, rescue, and leak control operation. Compiling all data and report forwarded to Sr. Management. Head of HSSE Improvement to

coordinate with Oil Terminals for obtaining clearance in writing for resuming operation post-earthquake.

9.10. Procedure (During the earthquake) – Office

- Move away from office into open area as given below;
  - Jetty office/Marine Building- Near Canteen in open area
  - 220 KV substation- outside office
  - BOD Office/Fire Station – Open area behind the Fire Station.
  - Engineering Workshop – Open area between Temp coal yard and road
  - Fertilizer shed – Open area outside the Fertilizer shed, near railway circle.
- Do not run on roof top.
- Do not stand near any electrical pole
- Do not stand near container, cargo stacks.
- Do not stand near godown walls.

9.11. Procedure (After the earthquake) – Office

Post-earthquake damage assessment team will visit the site and do inspection to see if damage has occurred and if it is Safe for re-entry.

Damage assessment team:
Head of Cont and Bulk Ops
Head of Asset Maintenance
Head of Projects
Head of HSSE Improvement
Sr Manager (IT)
Head of Admin

9.12. General Safety precaution during earthquake:

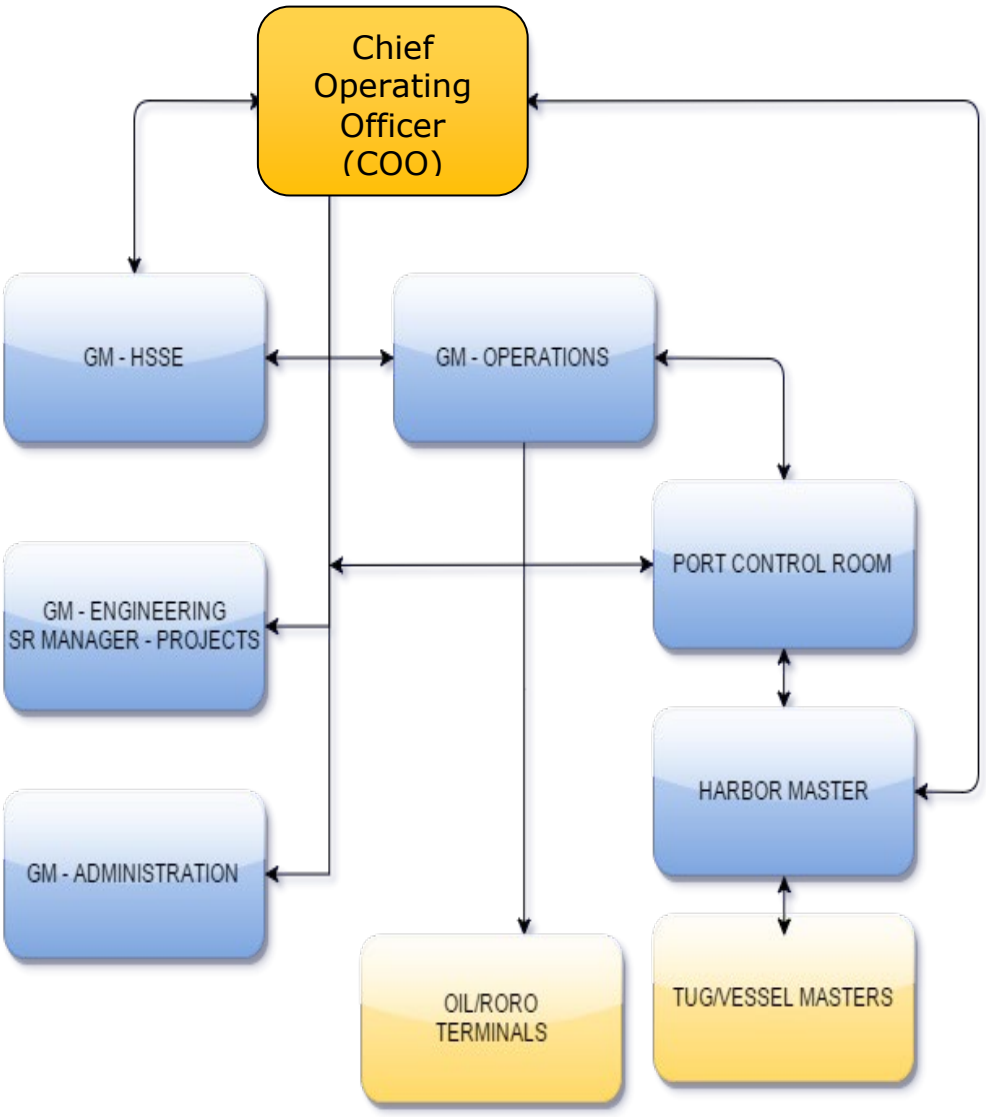
- Earthquake Safety
  - Tell the facts about earthquake to your family members
  - Take the training for first aid and fire fighting
  - Do not keep cots near the glass window
  - Do not keep heavy and fragile things in the selves
  - Do don't hang photo frames, mirrors, or glasses up your bed
  - Keep your important documents, some cash and necessary articles ready in a bag
- During Earthquake (at all Levels)
  - Do not panic
  - Do not be adventurous.
  - Do what is told to be done.
  - If already inside, than Stay indoors! Get under a heavy desk or table and hang on to it.

- If fire breaks out, drop on the floor and crawl towards the exist
- If you are out doors during the quake, keep away from buildings, trees and electricity lines.
- Walk towards open places, in a calm and composed manner.
- If you are driving, quickly but carefully move your car as far out of traffic as possible and stop. Do not stop on or under a bridge or overpass or under trees, light posts, power lines, or signs. Stay inside the car until shaking stops
- If you are in a school/office, get under a desk or table and hold on

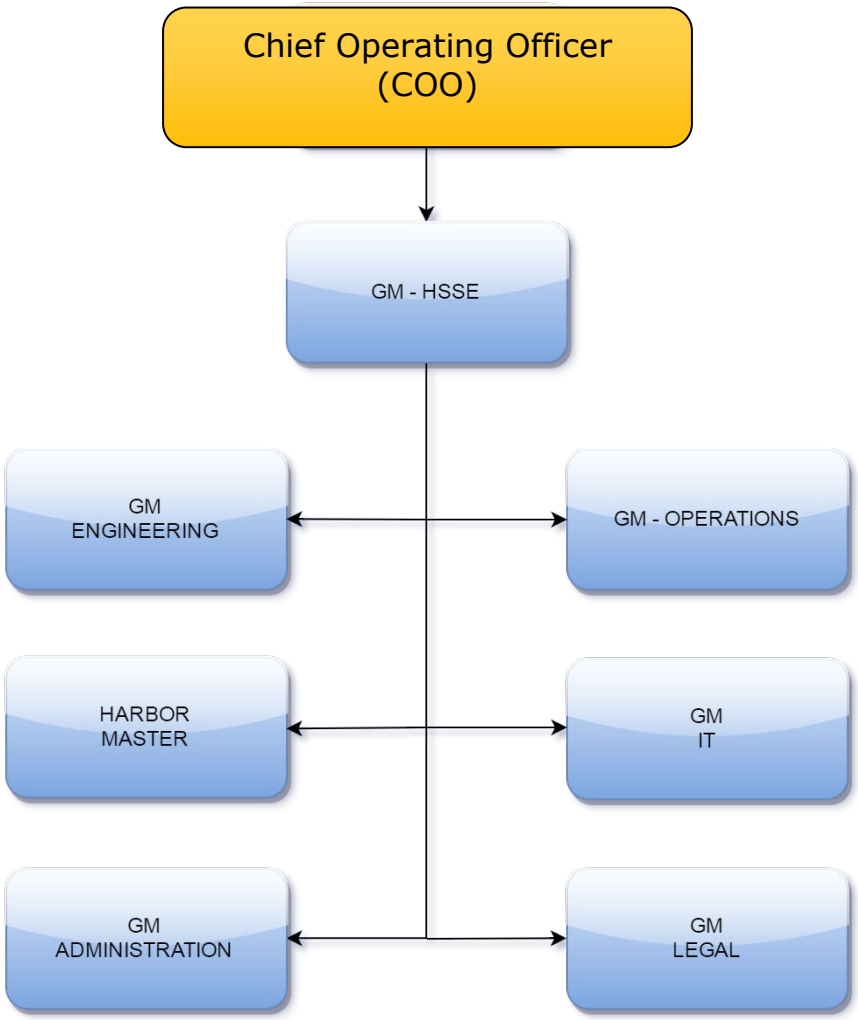
➢ After the Earthquake

- Do not be afraid of the aftershocks, remain calm
- Be ready for aftershocks which are likely to follow
- Listen to radio-TV and other media for Government Announcement
- Check for injuries to yourself and those around you. Take first aid where you can
- Extinguish fire, if any
- Examine walls, floors, doors, staircases and windows to make sure that the building is not in danger of collapsing
- Do not enter into the unsafe or risky houses or buildings
- Inspect for Gas leaks-If you smell gas or hear blowing or hissing noises, open a window and quickly leave the building. Don't light your kitchen stove if you suspect a gas leak.
- Do not keep telephone lines busy unnecessarily
- Switch off electric lines

9.13. FLOW OF INFORMATION CHART-AFTER AN EARHQUAKE



9.14. COMMAND CHART



10. Bomb Threat

These can be made by direct telephone call, anonymous letter or notification by some means to Police or newspaper offices to be passed onto the intended recipient. Those by telephone are by far the most numerous and lend themselves readily to the 'hoaxer'; they are sufficiently numerous and should have a policy and procedure to be followed.

10.1. Instructions to Telephone Operators

The receipt of a threat message by an operator, who has not been instructed in how to treat such a contingency, could cause considerable alarm with subsequent confusion about the substance of the message.

Specific instructions to operators should be given and this should include the following: -

- Let the caller finish his message without interruption.
- Get the message exactly- bearing in mind the points shown on the pro forma at the end.
- If it is possible to tie the supervisor or another operator into the conversation, do so.
- Ensure senior management is told exactly the contents of the call as soon as possible.
- If the caller is apparently prepared to carry on a conversation, encourage him to do so and try to get answers to the following:
    - **Where has the bomb been put?**
    - **What time will it go off?**
    - **Why has it been done?**
    - **When and how was it done?**

In general, if the caller is prepared to continue, try to get him to talk about possible grievances as they affect the company and anything, which bears upon the truthfulness of the message and the identity of the caller.

It is essential that senior management should be told as soon as possible so that there is no delay in implementing policies and procedures.

10.2. For guidance of telephone operator bomb threat check list

Signal your Supervisor and conform to pre-arranged drill for nuisance calls: tick through applicable words below, insert where necessary.

TIME……. DATE……

ORIGIN: STD / Coin Box / Internal / Satellite / ……..

CALLER: Male / Female / Adult /Child / ……

VOICE: Loud / Soft / Rough / Educated / High Pitch / Deep

SPEECH: Fast / Slow / Distinct / Blurred / Stutter / Deliberate

LANGUAGE: Obscene / Coarse / Normal / Educated / Foreign / Quiet

ACCENT: Local / North / South / North east / Foreign / Disguised / Hysterical Voices / Drunken

MANNER: Calm / Rational / Irrational / Coherent / Incoherent / Aggrieved / Humorous

BACKGROUND NOISES: Factory / Road Traffic / Music / Office / Party atmosphere / Railway station

TEXT OF CONVERSATION

……
……
……
……
……
……

10.3. General Precautions

- Start a registration system to immediately identify bona fide employee-cars-two wheelers-if not already in existence.
- Control entrance of visitors, suppliers and contractors to the office/site. Visitor and vehicular passes can be used to ensure a record and that the person and/or vehicle leaves.
- Do not allow visitors to enter upon any pretext without prior confirmation that they are expected /welcome. Arrange collection from reception point in case of doubt.
- Review physical protection of buildings, ie. adequacy of fencing, external lighting , doors, ground floor windows, critical installations etc.
- Ensure that the standard of house keeping around buildings is such that unfamiliar objects will at once become noticeable.
- In the event of a bomb warning being given, small rough parcels and plastic type shopping bags left in odd corners or near entrances should be at once suspect, like wise unfamiliar cars parked haphazardly.

10.4. POLICY

Fundamentally, there are three possible alternatives:

1. To evacuate, and search before re-entry.
2. To search without evacuation.
3. To ignore the message – All such calls to be taken seriously.

The decision must rest with the senior person available; amongst points to be considered are: -

- Nature of the call – apparent age of the caller, speech, attitude, general approach etc.
- Recent history of such threats, genuine or otherwise, locally and nationally.
- Prevailing conditions of industrial tension, strikes and political unrest in the neighbourhood and particularly at the recipient's premises.
- The implications and dangers of an evacuation.

In all instances police out post at port and police station at Rajula and fire authorities should be in formed immediately, whether an evacuation is to be ordered or not.

EVACUATION
Communication must be such as to ensure that all personnel cab be warned speedily and with a minimum of alarm without affecting areas not intended to be evacuated.

IN CASE OF EVACUATION

- Persons who are instructed to get out must take their personal parcels, bags and other belongings to avoid complications during searching.
- If the time limit given by the warning permits, there should be quick search by supervisory staff before the premises are vacated. A system should be devised to ensure everybody is out.
- After the time limit of the threat has elapsed, a reasonable margin should be allowed before a search by security/ supervisory personnel takes place and employees are allowed to re-enter.

NO EVACUATION

A search should be made by security/supervisory personnel of likely 'planting areas' ie., entrances to the buildings, cloak rooms, toilets and perimeter of building with special attention to parked vehicles.

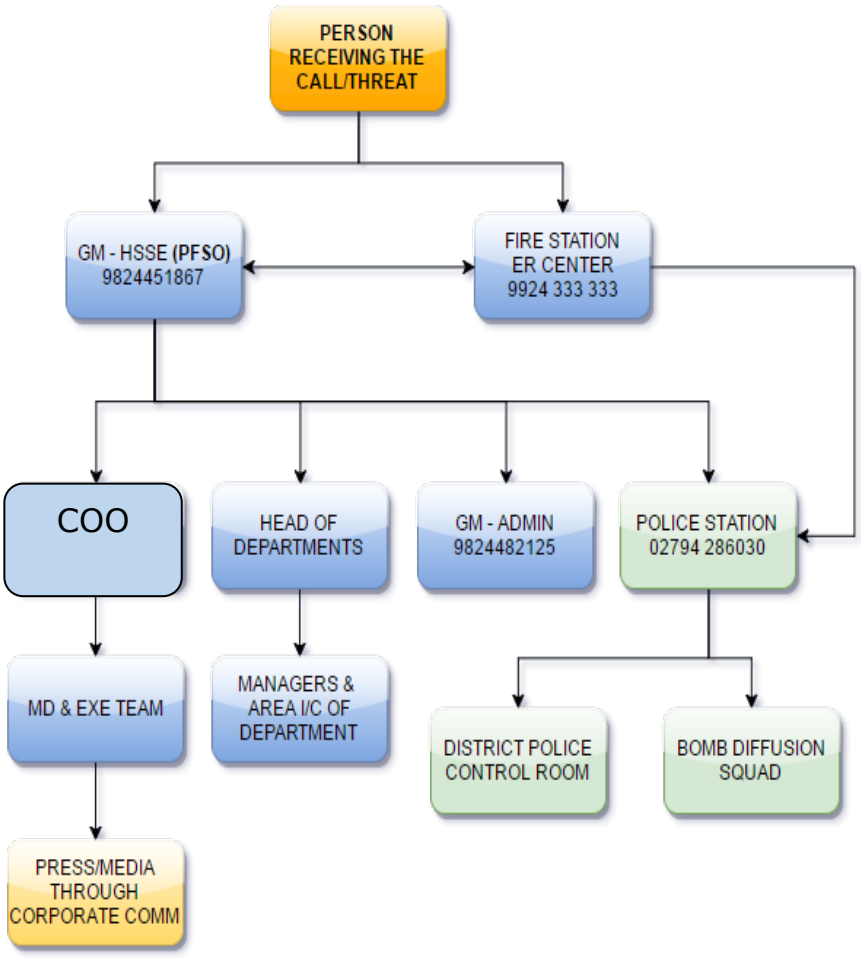
ACTION

On receiving the call and cordoning off the area immediately contact the police Outpost,

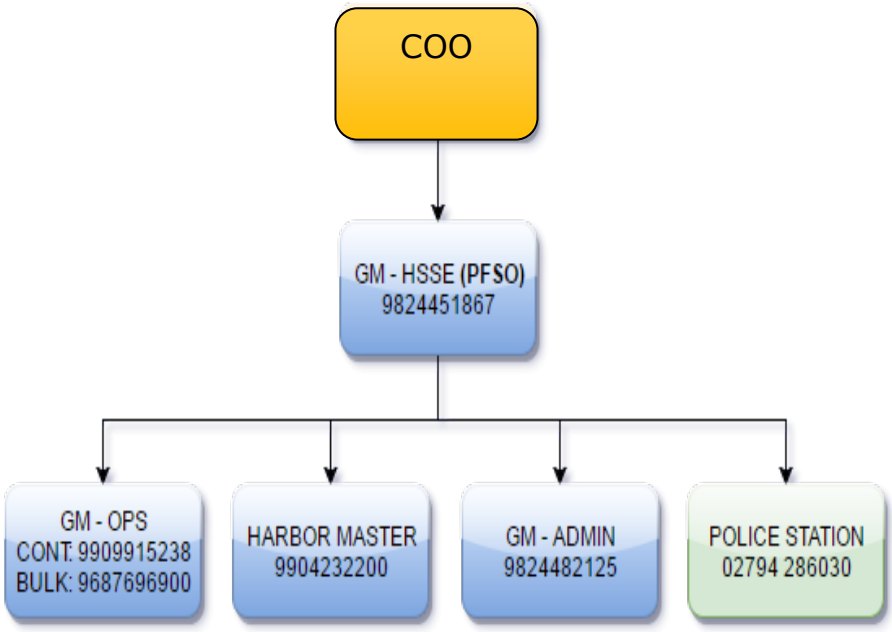
PSI Pipavav Marine	222077
SP Office Amreli	+91 2794 222 333 sp-amr@gujarat.gov.in
Amreli Control Room	+91 2794 223 498

Do not try to touch/try to open or operate any such suspected material.

10.5. FLOW OF INFORMATION IN CASE OF BOMB THREAT



10.6. COMMAND CHART



PFSO will be the coordinating authority in case of bomb threat

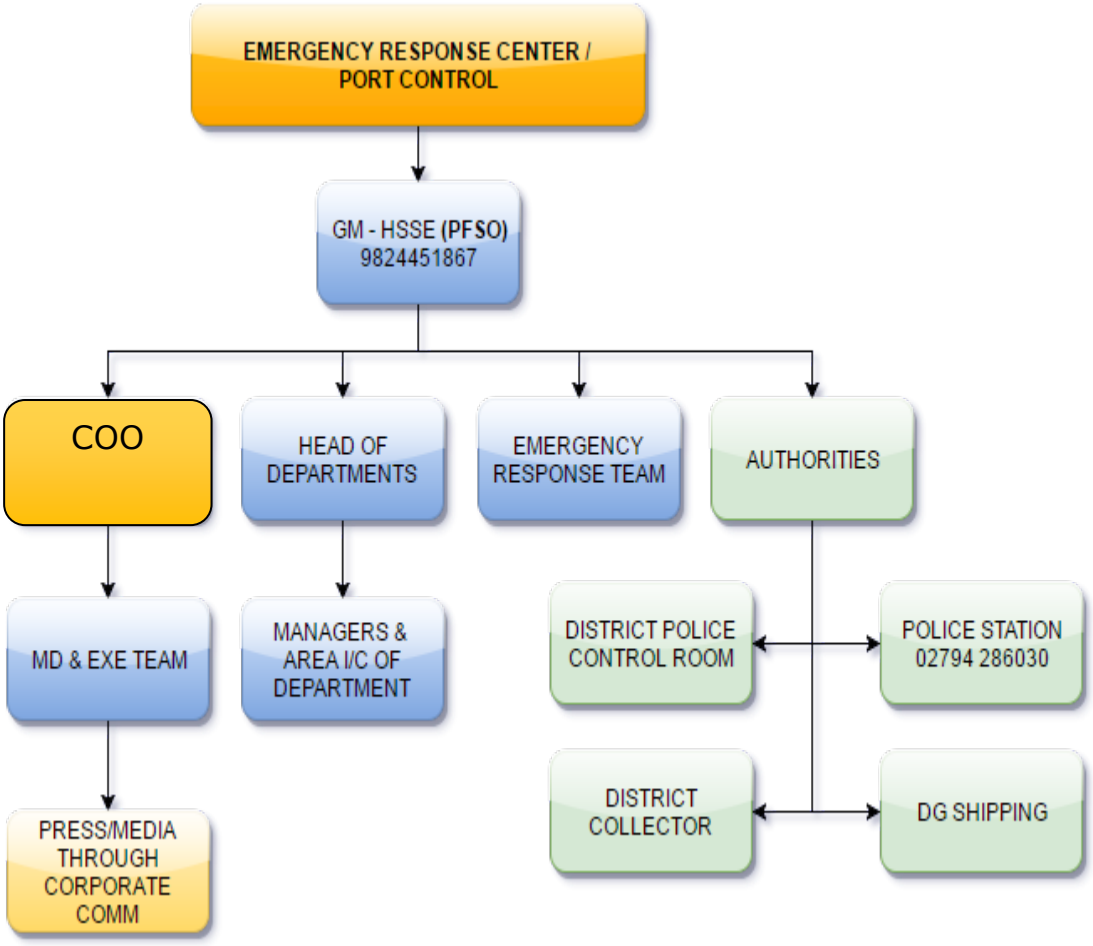
11. Hostage Taken by Terrorist

11.1. Hostage Situation

When information is received that terrorist has taken hostage, following to be done:-

- Immediately inform PFSO & Dy. PFSO
- PFSO to inform local Administration / Police and DG Shipping.
- In consultation with DG Shipping Security level to be raised to level 3.
- All Ships alongside and at anchorage to be informed about the situation and security level.
- Area to be cordon-of where the hostage is being held.
- No Weapons to be shown to the terrorist to prevent aggravation of situation.
- Keep the dialogue / conversation with terrorist till local police / commandos / Civil Administration help arrives.
- On arrival competent authorities to take charge

11.2. FLOW OF INFORMATION



12. Grounding/Collision of Vessels in Port Waters

1. Raising Alarm - The responsibility of raising the alarm in case of Grounding/Collision/Pollution involving one or more ship lies with the Ship(s)' Master(s) or Pilots onboard. The same shall be communicated to Port Control on Channel 71 (Port working Channel). The Control Room in turn will inform COO, Head (Cont and Bulk Ops), Harbour Master, Head of HSSE Improvement, Head of Projects and the agents for the ship(s).

   If the collision is on berth, the Jetty Supervisor will be primarily responsible for raising the alarm. Project department is to be informed for preparing an estimate of damage caused

2. Marine department on receiving message from a ship approaching Port, informing the Port, of damage to the vessel, which may lead to leakage/flooding, the vessel will be instructed to anchor in the designated area for inspection.

3. The Harbour Master will board the ship, investigate and report to COO.

4. A meeting to be convened with representatives of ship owners, cargo agents and Port representatives to chalk out the plans for rescue operation and its cost bearing

5. If the vessel is leaking, Harbour Master or a designee of COO and vessel owner’s representative will assess and evaluate the extent of damage and make a battle plan for the emergency. This plan to re-float the ship will include the ship to float itself naturally during next high water, use of tugs, availing the services of OSVs etc.

6. If the above evaluation confirms that the vessel is not leaking and the COO is satisfied that the vessel may be brought inside to berth alongside to carryout the repairs. In this case such ship must indemnify the Port against all losses and damage to Port facilities. The vessel is also to be covered by an insurance company and Protection and Indemnity (PI) Club for hull and machinery.

7. Head (Cont and Bulk Ops) will inform the ship's agents and instruct them to summon immediate assistance of all kind, which will include divers, workshop, Surveyors and Salvage specialists (if the vessel could not be re-floated).

8. The vessel should not commence any cargo work till it is permitted to do so by the Port.

9. If the vessel is grounded, attempts to be made to lighten the ship by offloading the cargo and by de-ballasting.

10. If any oil spill is sighted, Harbour Master to assess the extent of oil spill and report to Head of HSSE Improvement.

11. Head of HSSE to contact the Coast Guard/Navy at Porbandar for assistance in Combating the oil spill and process as pre Oil Spill contingency plan.

12. The Safety Department to ensure if, the oil spill forms out to be fire hazard, adequate steps are taken to counter it by using the facilities available onboard tugs.

13. Sr. Mgr (Container ops-Quay side) will give a 4 hourly Situation Report (sitrep) to all participating agencies.

14. The Administration Department to constitute a cell under Head (HR) which will act as an information centre. They need to address the inquiries from CG/Navy/Owners of the ship/Police and provide the sitrep to the concerned.

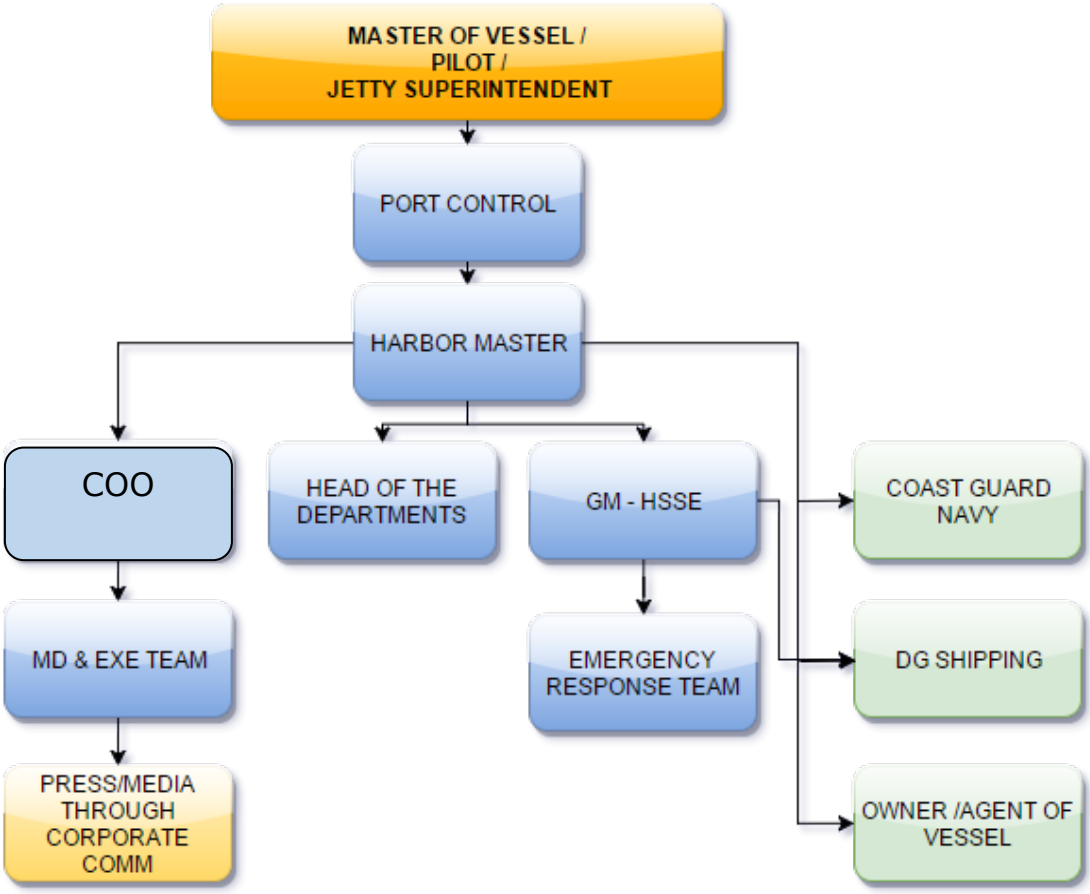
Press notes are to be issued only after the approval of MD/ COO.
MTO to immediately release adequate vehicles to attend the emergency.
Safety Department to collect the samples of oil slicks if any, for laboratory test.
A narrative of events is to be maintained by the Port Control and Head (Cont and Bulk Ops).
The Port Control to collect the following data in respect of the ship in distress;

Name of the vessel
Type of the vessel
Position where stranded
Type of cargo carrying
Lightship displacement
Full load displacement
TPI (Tons per inch Immersion)
Draught of the vessel (Aft/Fwd/Amidships)
Course and speed of the vessel prior to grounding
Position of rudder at the time of grounding
Status of Fire fighting/Damage Control and cargo pumps
Conditions of the fuel tanks.
Total No. Of crews

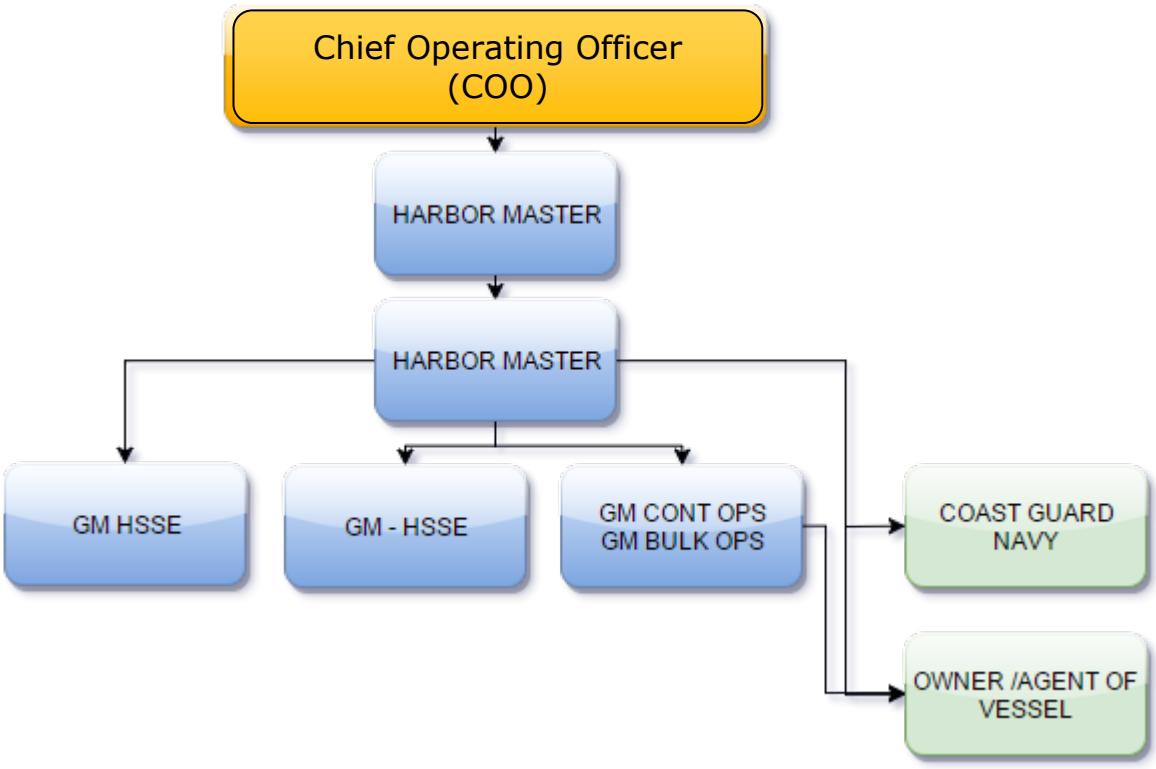
Marine department to compile the following data;

Tidal data: Low water/High water/Spring tide
Sea
Swell
Wind direction & speed
Current direction & speed
Weather
Depths at surrounding water of the ship
Nature of bottom: silt or mud/sand/rock
Largest scale chart of the area
Access: to the wreck site
To the wreck

12.1. FLOW OF INFORMATION IN CASE OF GROUNDING/COLLISION



12.2. COMMAND CHART



13. Oil Spill

13.1. ONSHORE OIL SPILL

The most common reasons for onshore oil spills are:

- failures of the tank body;
- damage to equipment on the tank such as sight gauges;
- damage to or wear-and-tear failures of fuel feed lines;
- failure of components at the hydraulic system, such as flexible hoses and seals.
- during transfer to oil/fuel.

Preventing Spill

Oil spills are very detrimental for the environment and sometimes can have long term impact as well. Its always wiser to have the systematic inspection regime in place to ensure zero spills.

Raising alarm

The person who observe any spill should inform to Port HSSE Team immediately. Emergency response team should inform Sr Manager – Environment in case of any oil spill.

Action Plan

Once a spill has reached soil, gravel, pebbles or any broken ground, the control, containment and clean up of the spill often becomes more difficult than one onto a hardstand or sealed surface. The clean up procedures described below are for a minor spill (few litres) to a medium spill (1500 litres) of oil or fuel. In the event of a major spill on soil, a different technique maybe more appropriate.

The five basic steps of a spill clean up are:

1. Control the spill
2. Contain the spill
3. Clean up the spill
4. Disposal
5. Remediation the soil

Firstly, before attempting any spill clean up, ensure the area is safe to enter. Be aware of fumes and approach from upwind. ALWAYS ensure personal protection equipment is worn.

CONTROL:

Stop the source of the spill. For example, upright the drum or stop the pump, turn off all ignition sources and locate drains.

CONTAIN:

Use absorbent booms, banks of saw dust/soil, hoses or any safe objects to surround and prevent the spill from further impacting the

environment. Often with spills on soil, little sideways movement occurs after the initial few moments. Unless the soil is extremely compacted or wet, the spill will soak directly into the ground.

CLEAN UP:

Large pools of liquid may be absorbed with pillows, pads or particulate. These absorbents are then recovered for disposal. The remaining spill should then be covered with a layer of saw dust which is used to absorb any free liquid.

DISPOSAL:

Disposal of all the waste oil, oils soaked pads, absorbents must be done in accordance to State Pollution Control Board guidelines. Sr Manager – Environment should be consulted for the guidelines.

REMEDIATION:

Sr Manager – Environment should be consulted for the guidelines.

13.2. OFFSHORE OIL SPILL

Refer Oil Spill Contingency Plan.

Sources

1. **Grounding**
   a. Poor seamanship practice
   b. Steering-gear / Gyro breakdown
   c. Tug failure
   d. Weather conditions
   e. Human errors
2. **Collision:**
   a. Between two vessels, tugs, boats etc. in the channel.
   b. Collisions with the jetty at the time of berthing / unberthing.
3. **Bunkering:**
   a. Damaged Hoses
   b. Hose bursting
   c. Parting of hose connection due to accidental movement of vessel
   d. Overflow of ships tank
4. **Visiting Ships:**
   a. Damage to the fuel tanks of the visiting ships.
   b. Bilge pumped out by vessel (illegal)
5. **Sabotage**
   a. Terrorist act
   b. Antisocial elements

Raising alarm

The person who sees the spill should inform the Port Control immediately. If the spill is due to any accident, the Master or the Pilot onboard should inform the Control Room. Jetty Supervisor and other employees on night shift on jetty to keep a strict vigil during their night shift for the bilge pumping by the vessels at night, and should report any such sighting to the Port Control

Control Room on receiving such information, must inform Head (Cont and Bulk), Harbour Master and Head of HSSE about the incident.

When an oil spill is reported Emergency Action Group (EAG) under Head of HSSE as members will assess the situation and execute the action plan to combat the spill and will also give regular inputs to the Managing Director / COO regarding the incident.

Action Plan for Head of HSSE

- Assess the situation
- Take note of the extent of spill
- Compile the oil spill reporting form
- Fax the form/intimate the Coast Guard on following address for assistance.

Contact Authority: (Coast Guard)

The Asst. Commandant
Station Operations Officer
Coast Guard Station Pipavav
Hindorana Chowk, Jafrabad Road, Post Box No. 41,
Rajula - 365 560
Tele: 02794-221601/ Fax: 02794-221554
Fax: 02794-221600

The Dy. Inspector General,
Commander, Coast Guard (Gujarat)
Coast Guard District No.1
Post Box No.25,
PORBANDER - 360 575
Tele: 0286-2241793
Fax: : 0286-2210556

- Intimate GMB at Jaffrabad, Port Victor and Port Mahua.

- Check availability of slop barges from the neighboring ports or other agencies for collecting oil spill / off load the fuel from the vessel in distress.
- Inputs to Managing Director / COO

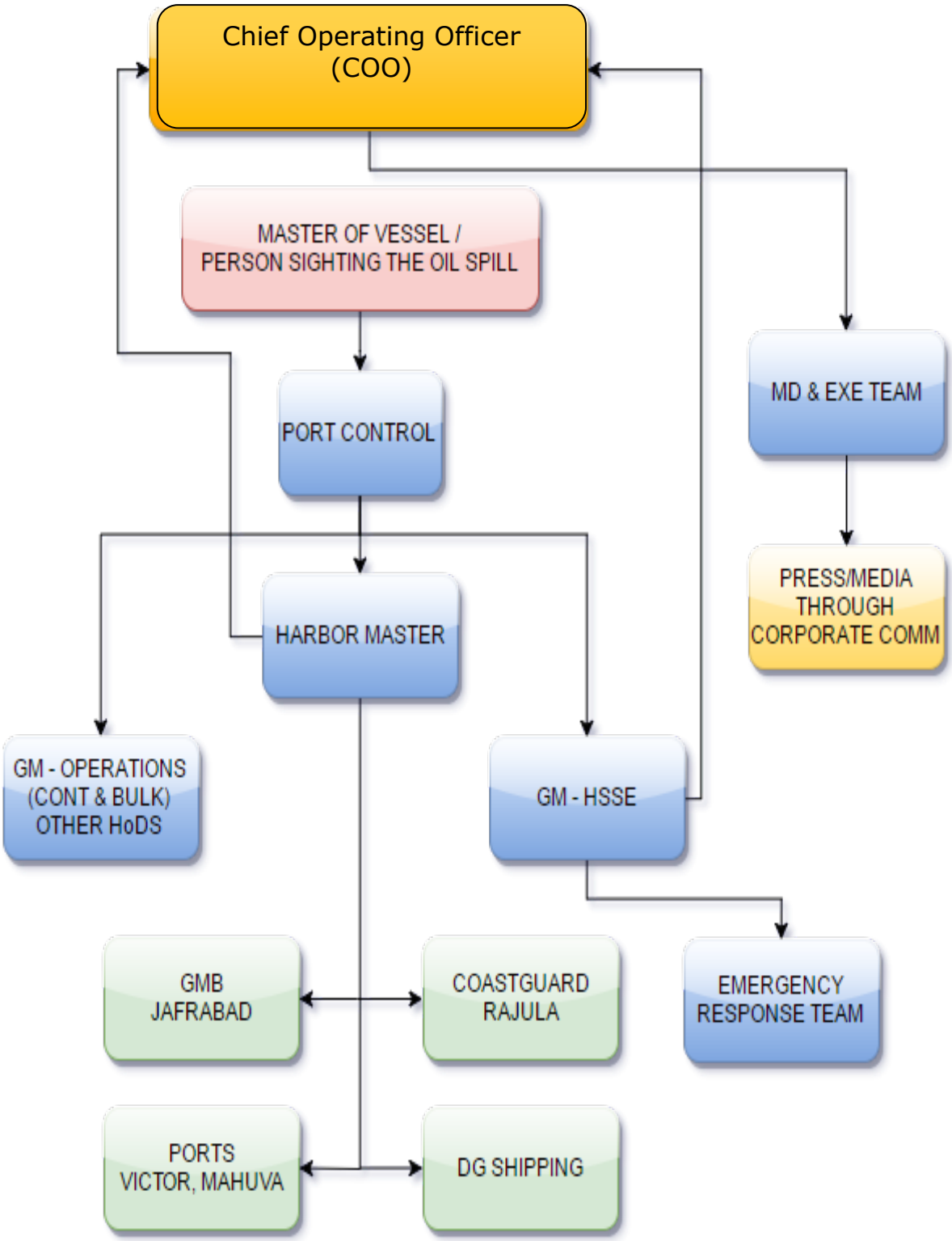
Action Plan for Harbour Master

- Provide inputs for compiling the oil spill reporting form
- Stop all in/out movements of vessels
- Advice Shial-bet population
- Arrangements to receive CG ships
- Alert the tugs to be standby for fire fighting operations in coordination with Head of HSSE

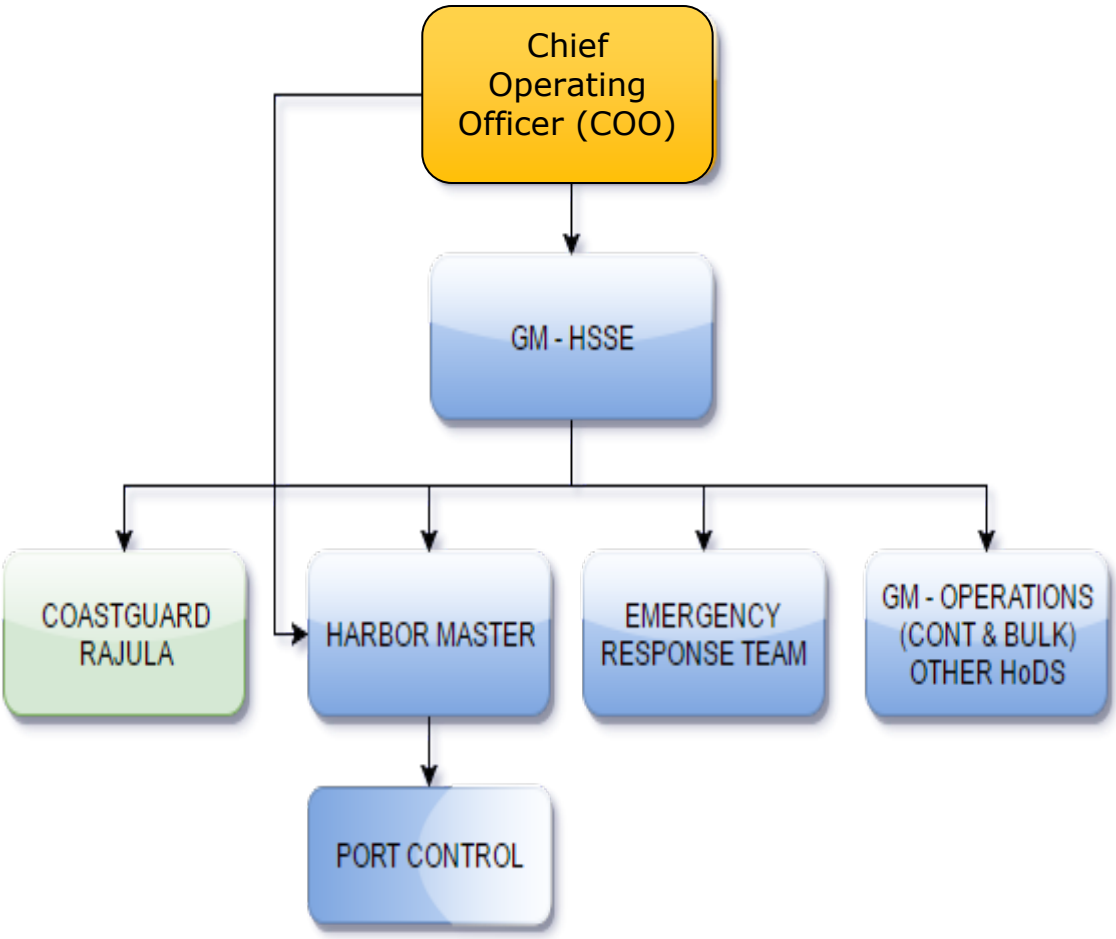
Action Plan for Head of HSSE

- Provide inputs for compiling the oil spill reporting form
- Alert the Fire Station
- Summon off duty Firemen
- Ensure ambulance on standby
- Collect the samples of the spill for laboratory analysis

FLOW OF INFORMATION IN CASE OF OIL SPILL



13.3. COMMAND CHART



14. Man Overboard (Person falling into sea)

LIFE SAVING APPARATUS

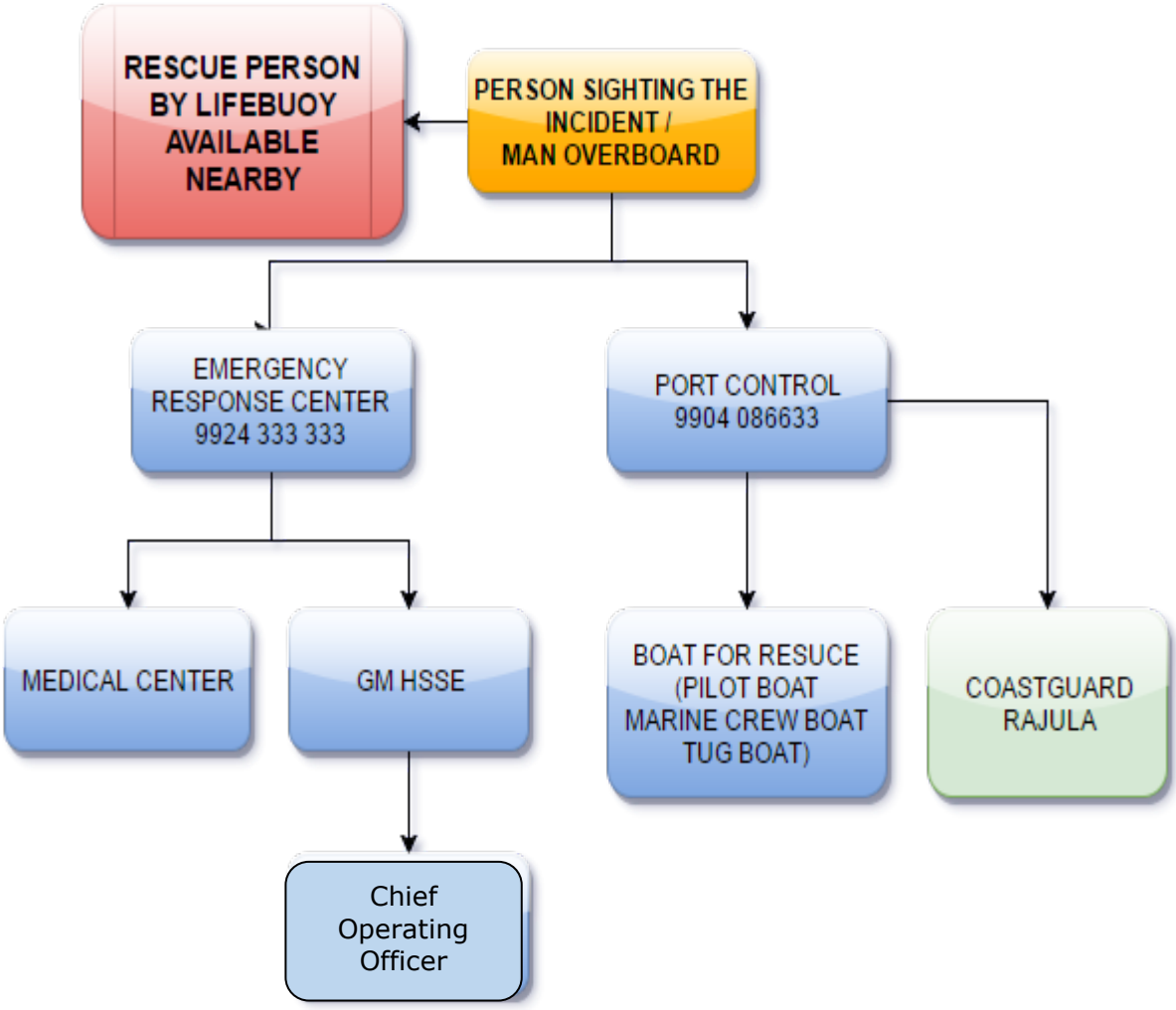
Availability

1. Twelve Nos. of life buoys are available in the stowage boxes kept on Jetty No. 1, 2, 3 AND 4. Two Nos. life buoys are available on Liquid Jetty.
2. Pilot Boat is always manned and can be utilised for rescue operations.
3. Three hired Tugs/mooring boat are always available for operations at short notice.
4. One Pilot Boat (Deewan) is available.

Use

1. The life buoys are kept at the above places for rescuing someone who falls accidentally into the sea.
2. The person who sees the incident should alert other people by raising an alarm.
3. He should immediately break the glass of life buoy stowage and get the life buoy attached with approximately 30 meters' length of rope.
4. He should then quickly remove any foul of rope, hold the end of the rope (unattached) and throw the life buoy close to the victim and ask him to hold on to it.
5. Do not throw the life buoy on top of the person as it may injure him due to the hit.
6. When the victim get hold of the life buoy, slowly pull the rope and bring him close to the jetty and recover him by lowering a ladder (if victim is conscious) or by sending the pilot launch (to recover unconscious victim).

14.1. FLOW OF INFORMATION FOR PERSON FALLING INTO THE SEA



15. Fire/emergency in neighbouring industry/village

Port Pipavav is committed to provide assistance to neighbouring industries, local and district administration in case of Fire and emergencies for which Port Pipavav is equipped.

Equipment and manpower will be provided for external assistance provided,

- It will not disturb the routine operation of the port.
- Safety of Port is not compromised.
- Safety/Security of personnel's/equipment's is ensured during the assistance.

Sr Manager (PR) will be the coordinating authority for all such external assistance. In his absence, the next senior person at the port will take the charge.

All such external assistance calls to be diverted to Emergency No: 9924 333 333 or Ext No-2777, D-02794-302777

Call receiver to take the following details:

- Name of the caller and place.
- Nature of the emergency.
- Exact Location, Landmark if any and shortest possible route
- Telephone/cell no. of the caller

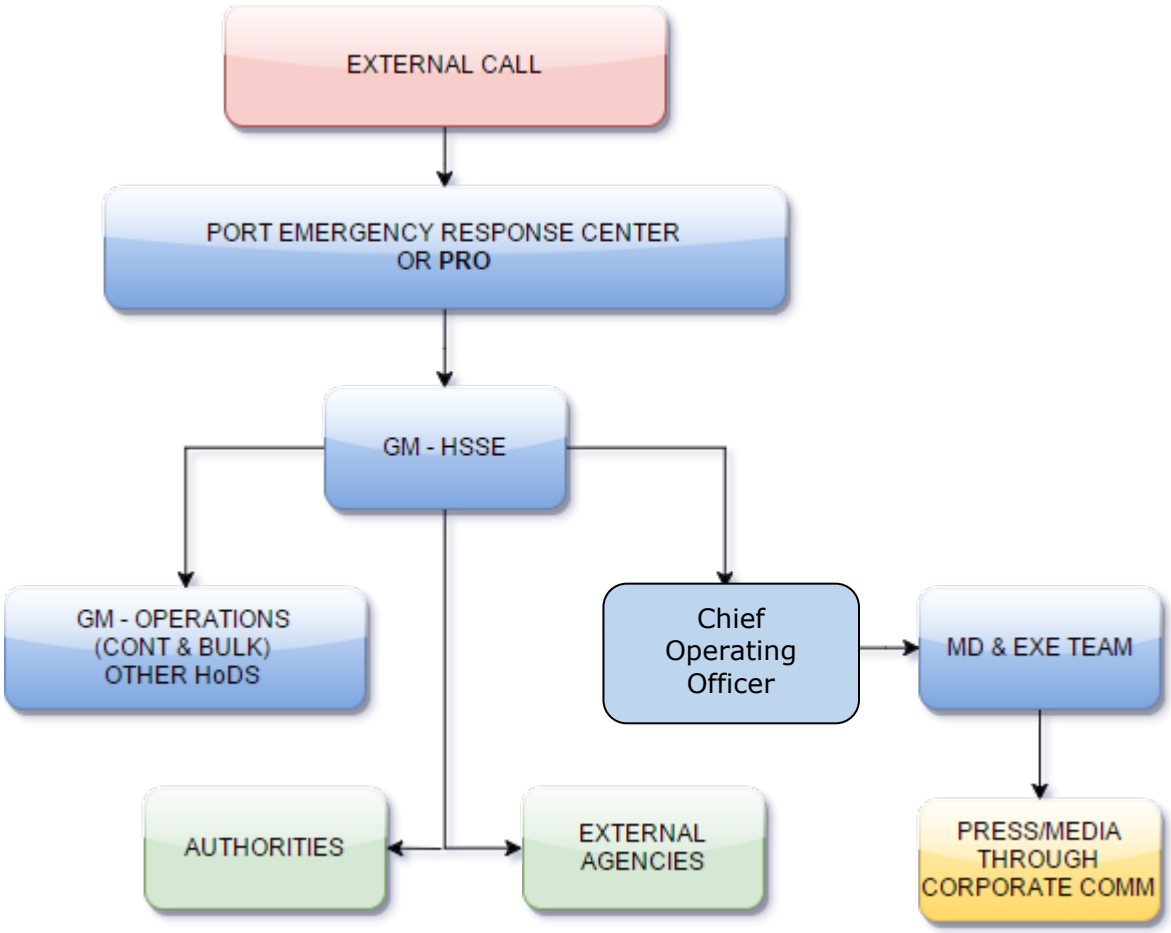
On receiving the details, Call received to contact Sr Manager (PR).

Depending upon the emergency and equipment required, Sr Manager (PR) will discuss with
Head (HR), Head of HSSE and Head of Admin for further course of action.

HSSE will forward a detailed report on the external assistance provided to the following

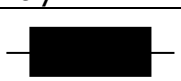
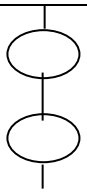
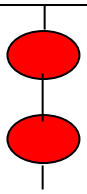
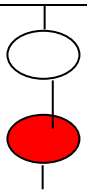
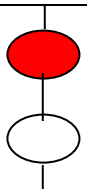
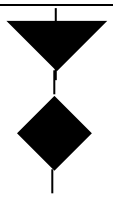
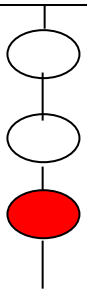
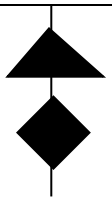
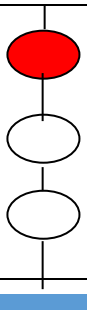
COO
Sr. Manager (PR)
Head (HR, ER, Admin & CSR)

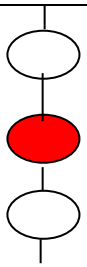
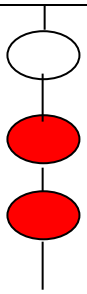
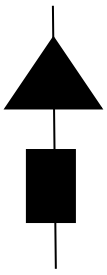
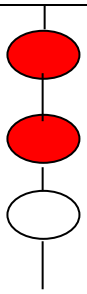
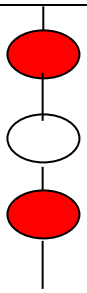
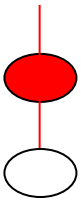
15.1. FLOW OF INFORMATION / COMMAND CHART



16. Storm/Cyclone

16.1. Signals

Signal no	Symbol Day	Symbol Night	Type of warning	Description
I			Cautionary	There is a region of squally weather in which a storm may be forming
II			Warning	A Storm has formed
III			Cautionary	Port is threatened by squally weather
IV			Warning	The port is threatened by storm, but it does not appear that the danger is as yet sufficient great justify extreme measures of precautions
V			Danger	The port will experience severe weather from a storm of slight or moderate intensity that is expected to cross the coast to the south of the port
VI			Danger	The port will experience severe weather from a storm of slight or moderate intensity that is expected to cross

				the coast to the north of the port
VII			Danger	The port will experience severe weather from a storm of slight or moderate intensity that is expected to cross over or near to the port
VIII			Great danger	The port will experience severe weather from a storm of great intensity that is expected to cross to the south of the port
IX			Great danger	The port will experience severe weather from a storm of great intensity that is expected to cross the coast to the north of the port
X			Great Danger	The port will experience severe weather from a storm of great intensity that is expected to cross over or near to the port
XI			Failure of communication	Failure of communication with meteorological heads quarters has broken down and the local officer considers that there is a danger of bad weather

16.2. CYCLONE INFORMATION

- **IMD, Ahmedabad**
  India Meteorological Department
  Meteorological Centre, RS/RW
  Building , Airport, Ahmedabad- 382 475

  E-Mail : metahm01@gmail.com
  mcahm@rediffmail.com

  Tel : 079 22865012
  Fax : 079 22865449

- Gujarat Maritime Board (GMB) - Port Officer
  Tel: 02794-245165/245152

- Gujarat State Disaster Management Authority (GSDMA)
  https://gidm.gujarat.gov.in/en
  (079) 23275804 / 806 / 808 / 811
  info-gidm@gujarat.gov.in

- http://www.rsmcnewdelhi.imd.gov.in/index.php?lang=en

- http://www.imd.gov.in/Welcome%20To%20IMD/Welcome.php

- http://severe.worldweather.org/tc/in

- Cyclone warning can also be collected from television and radio news.

- **Refer DG Shipping SOP for Cyclone for detailed information.**

16.3. CONTACT POINTS AND ESCALATION LEVELS

Director General of Shipping

1	Control Room	DG Comm Center	022 – 22614646 8657549760 8657549752	dgcommcentre-dgs@nic.in
2	First Escalation	Capt Vikram	9888890826	vikram.manhas@gov.in

		Singh Manhas		
3	Second Escalation	Capt R K Mudali		muduli-dgs@gov.in

Indian Navy

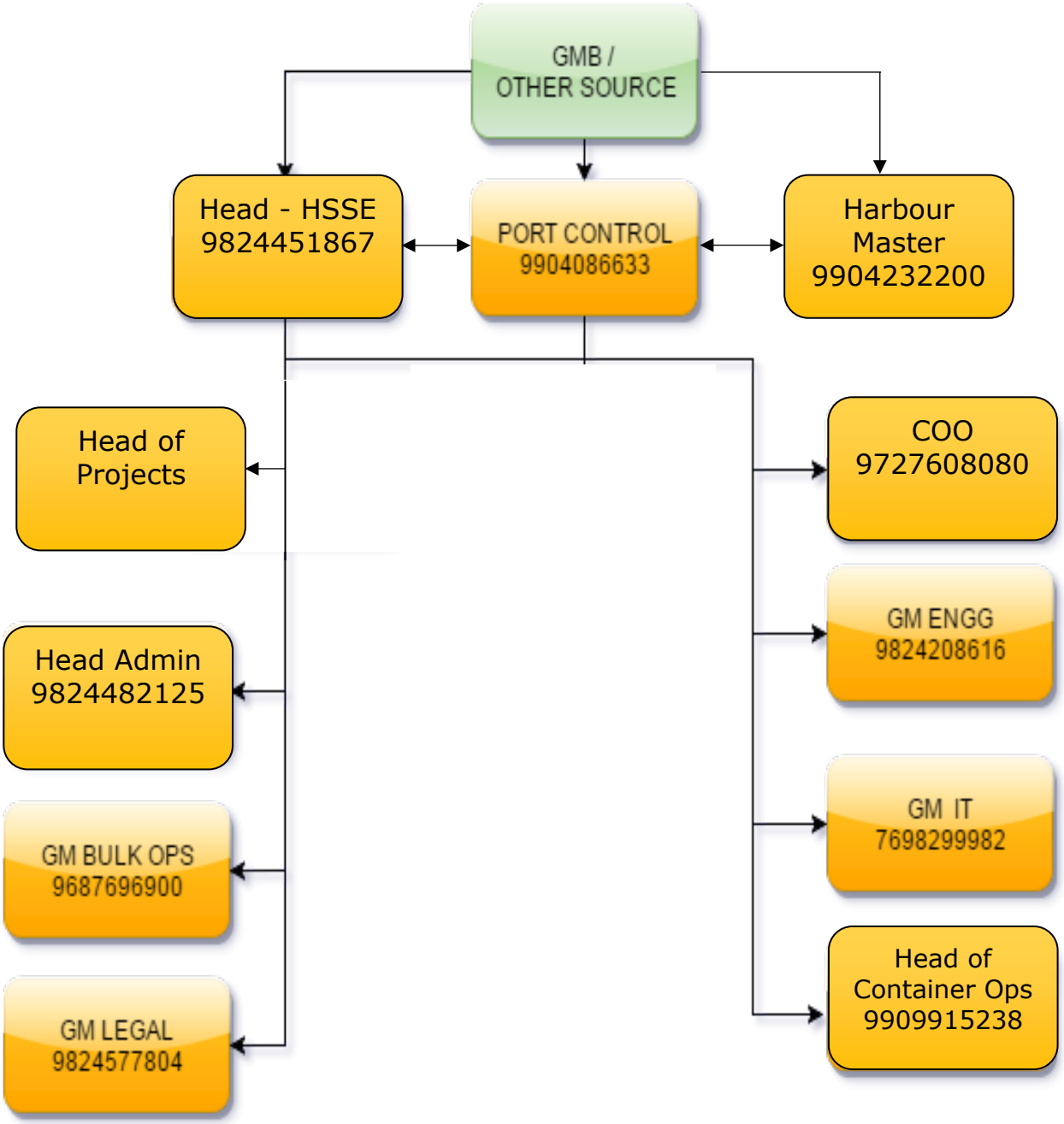
1	Control Room	MoC Delhi	011 – 21411563	dno@navy.gov.in
2	First Escalation	Capt. M.B Dongre	9930640873	muralidhardongre@gmail.com
3	Second Escalation	Cmde Alok Ananda	8527088900	dno@navy.gov.in

Indian Coast Guard

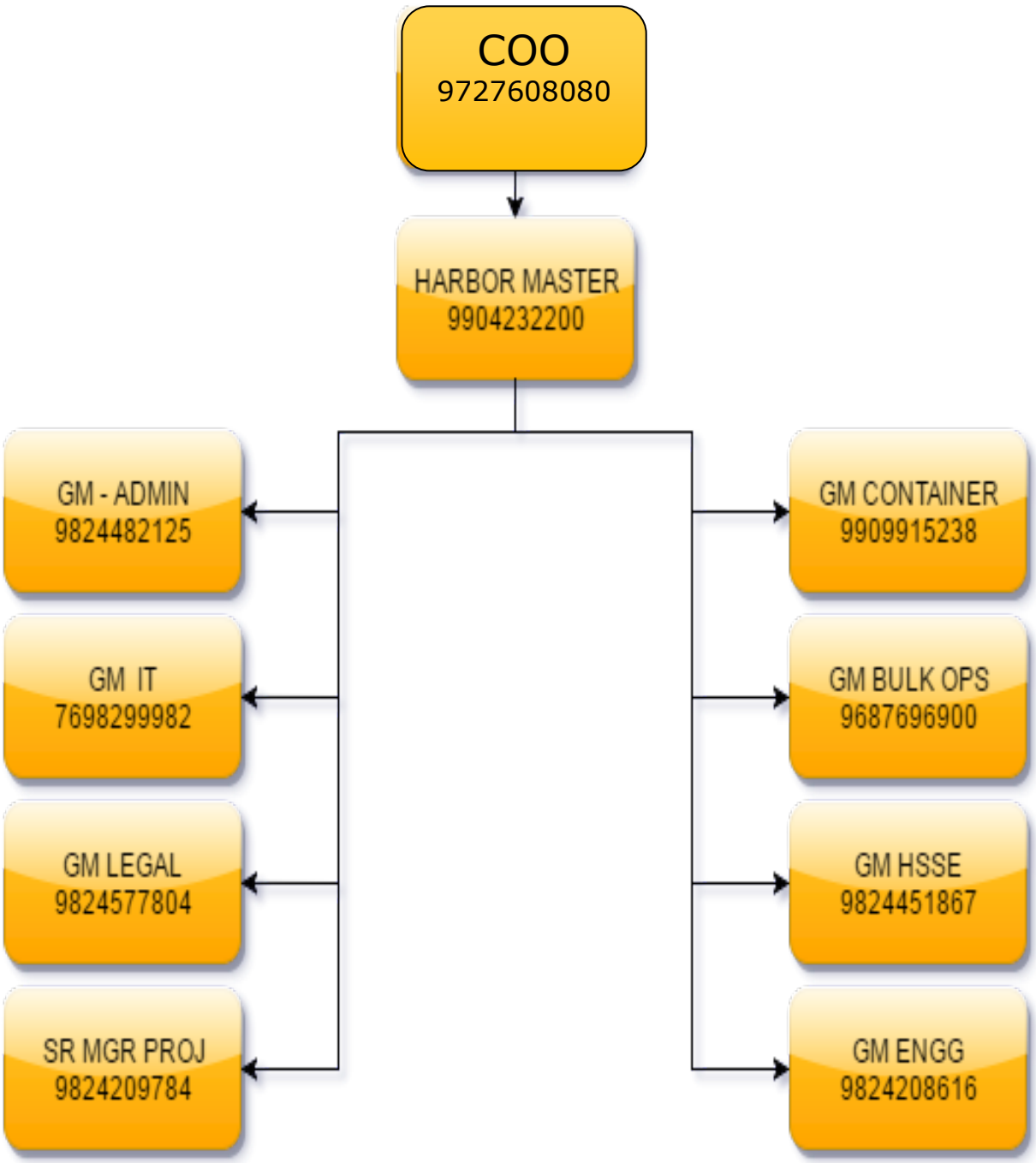
Telephone Exchange : +91-79-23243315, 23243316
Fax : +91-79-23243305
E-mail : rhq-nw@indiancoastguard.nic.in
Ops Centre : +91-79-23243264, 23243283
COMSTAN : +91-79-23241717, 23243305

1	Control Room	Ops Centre	011 - 23384934 011 – 23383999	dte-ops@indiancoastguard.nic.in
2	First Escalation	Duty Staff Officer	011-23384934	dte-ops@indiancoastguard.nic.in
3	Second Escalation	Comdt Ashok K Bhama	9444409160	dte-ops@indiancoastguard.nic.in
4	Pipavav Station	Dy Commdt Rakesh Kumar	9727277032	

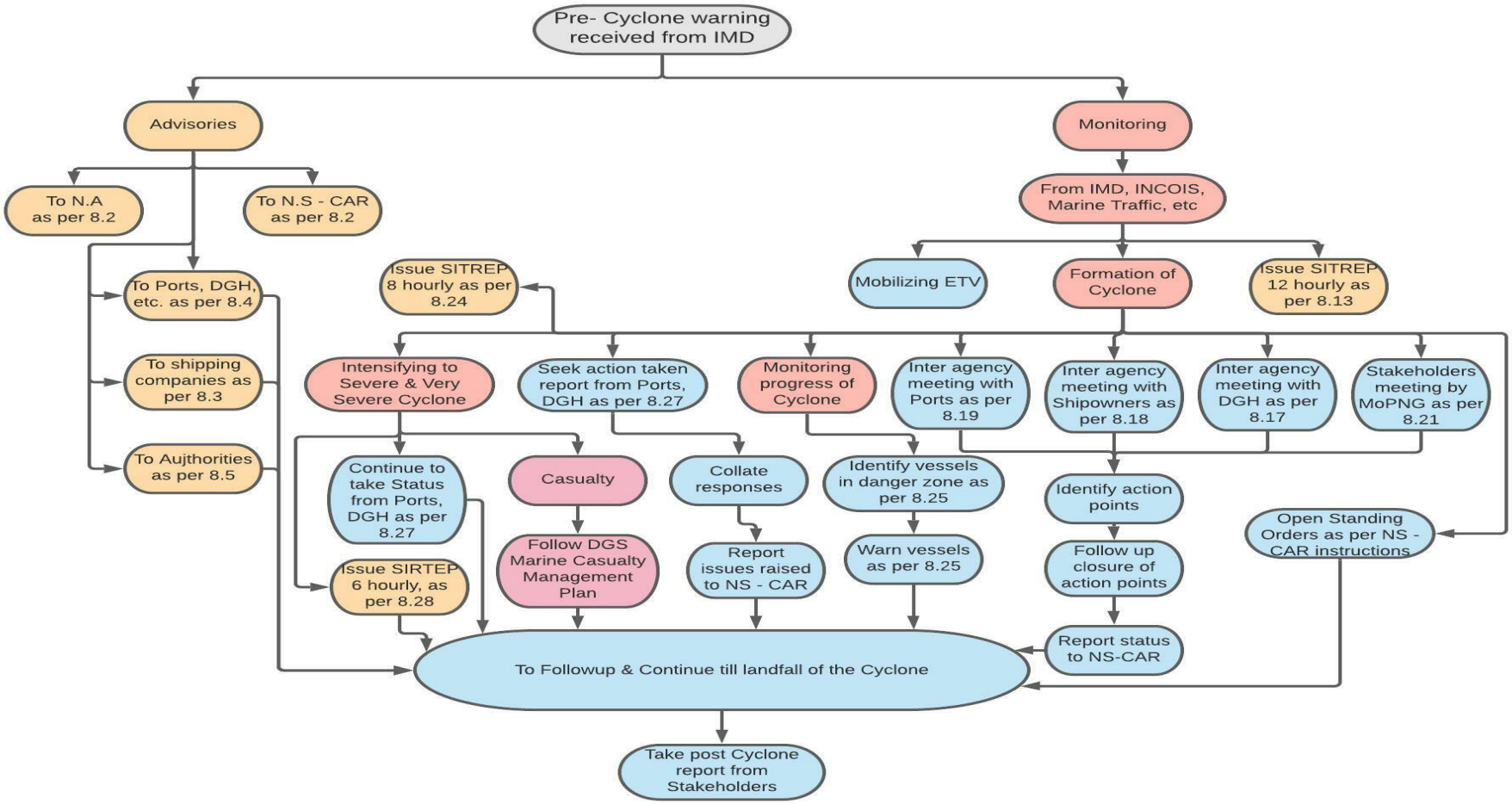
16.4. FLOW OF INFORMATION CHART



16.5. COMMAND CHART



16.6. OPERATION FLOW CHART AS PER DG SHIPPING SOP



16.6. Pre cyclone preparedness

On receipt of information of cyclone hitting the area around port, emergency preparedness to be as given below;

Zone	Nominated Zone in charge	Responsibility
Coal Yard	Sr Manager (Bulk)	• All equipment/vehicles to be moved to designated parking area • Coal heap tops to be drenched with copious amount of water to prevent minimal flying of coal particles in heavy wind. • Compaction of coal heaps to prevent flying of cargo. • Any burning heap needs to be completely drenched and compacted to ensure no flying burning cargo.

Container yard	SR. Manager (Container ops)	• Empty containers to be shifted outside RTGC operating area in CY to empty yard, as much as possible.
		• If not possible, row F & row G of empty container stacks need to be kept empty.
		• Maximum stacking height
		  ○ In CY (laden containers) – 4 tiers
		  ○ In CY (empty containers) – 3 tiers
		  ○ In empty yards – 2 tiers
		Note - Above stacking height is subject to yard inventory. Based on actual yard inventory at the time of storm forecast, there can be alteration in stacking height.
		• No vehicles to be kept in CY area or near container stacks in empty yards.
		• All ITV's to be parked in open plots with parking brakes & wheel chockers.
		• All signboards & loose material to be removed & to be kept in safe custody.
		• RTGs to be moved away from container stacks and Bus Bar and wheels locked in park position and lashed to very heavy container.
		• All TTs to be moved to parking space.

		• No equipment/personnel movement inside the yard till it is declared safe for movement post cyclone. • Physical copies of Yard inventory needs to be secured.
CFS Area	Sr Manager (Cont Ops)	• All stuffing/destuffing operations to be stopped. • Containers height to be brought down to single high. • All loose materials/cargo to be secured to prevent flying. • Doors/gates of all the godowns should be closed and if required containers should be used to as barriers.
Workshop	Sr. Manager (Engg)	• Manpower, tools to be kept on standby for immediate availability. • D.G Set trials should be taken and on standby mode for alternative power source. • DG Set fuel top-up.
Electricals and Sub Stations	Sr. Manager (Engg)	• Person on standby at substations for switching off power supply when communicated by Head of Asset Maintenance • Arrangement for dewatering in Substations if required. • Trial of emergency lights and availability of torches. • Lowering of High masts. • Identifying the DG supplier in case of very long recovery time for restoration of grid power. (Procurement needs to be involved)
Quay Cranes	Sr. Manager (Container Ops) Sr. Manager (Bulk Ops)	• Securing quay crane to storm anchors as per the standard work instruction (STS securing). Boom latch, trolley lock, doors/windows to be secured. • All doors of quay cranes to be closed and locked. • Hoppers to be secured as per standard procedures.
Yard cranes	Sr. Manager (Container Ops)	• RTGC's to be parked outside busbar area in approach roads to avoid damage to DIU & busbar. • Trolley to be locked & all doors/windows to be properly secured. • No RTGC to be kept in A-block yards.
Fertilizer shed	Sr. Manager (Bulk Ops)	• Removal of people from shed, transporting them to labour camp. • Ensuring electricity is cut off. Entry and exit is cordoned off.

		• No person or mobile equipment to be inside the shed unless entry permission given by COO. • No railway staff to be inside the shed.
RMGC area	Sr. Manager (Cont Ops)	• Removal of people from the area and transporting them to their camp. • RMGC to be in anchoring position with breaks applied. • No person/mobile equipment to be at the yard. • Equipment electricity to be cut off. • Housekeeping of container stacks.
Empty Yard	Sr. Manager (Cont Ops)	• Removal of people from the area and transporting them to their camp. • All mobile equipment to be removed from the yard and parked back to back in open ground. • Housekeeping of container stacks.
Colony	Manager (Admin)	• Intimation to all colony residents to remain inside, away from the glass windows. • All residents to be inside apartments. • Doors and windows closed. • Trimming of trees which are having potential to cause damage. • Parking of vehicles away from Trees and poles. • Intimation to canteen and grocery stores to maintain sufficient stocks of essentials. • Topping-up of all the water tanks including ESR. • Maintain few First Aid Boxes in the colony area. • Check availability of portable saw machine and petrol. • Electricity to be cut off (If Required).
Offices	Manager (Admin)	• No person allowed in the office • Electricity to be cut off • Secure all the doors and close all the windows.
LPG jetty	Sr. Manager (HSSE)	• Advance Intimation to all the Terminals operators. • Operation to be stopped and hoses disconnected.

		• Confirmation from all terminal operators on securing all the lines and materials. • Aegis to specifically confirm on locking of Marine Loading Arm. • No loose materials to be on the jetty area. (Cargo Hoses, Fire Extinguishers, Fire Hoses, boards etc) • Electrical supply to jetty cut-off (If Required).
Marine Ops and Port waters	Harbour Master	• Intimation to all the stakeholders. • Communication with GMB and other authorities. • All vessels at berth to be moved to safe anchorage. • All the harbor crafts to be moved away to safe anchorage. • In case Port is in-line of forecasted track of Cyclone: move the Harbour crafts either towards Gulf of Khambat or towards Gulf of Kutch considering the forecasted track.
Custom gate/ Gateno.1&2	Manager (Security)	• No entry for visitors. • Depends on the severity, security guards to be removed from all the portable cabins.
Fire Station	Sr. Manager (HSSE)	• Firemen, Firefighting/rescue equipment on standby for emergency situation handling. • Dewatering pumps trials and availability of fuel. • Placement of ER team and equipment at two different safe areas to ensure response by either team if any one team is stuck due to road blockage. • Medical team in standby at Port Dispensary.
IT	Manager (IT)	• Backup for all business applications and offline backup media shift to secure place • Timely plan shutdown of data centre (except network and communication devices) to avoid hardware failure of IT equipment due to abnormal shutdown. • Inform about the planned shutdown of IT Services to internal, regional and global Service owners.

		• Shifting of IT equipment and peripherals from porta cabins and other offices which are at risk. Secure the equipment with help of tarpaulin or other coverings which can not be shifted. • Checking healthiness and backup of UPS. • Secure physical copy of all importance information / documents need during the natural calamities or immediately thereafter (DMP, BCP, Recovery plans, Important contact details, Yard inventory etc) • Communication arrangement for crisis control room and VHF re-shuffling to concern person / team. • Security CCTV cameras.
Project Sites	Sr Manager - Projects	• Intimation to all the contractors. • Securing all the loose materials and unstable structures. • Securing material like cements etc to avoid damages.

16.7. Post cyclone revival of port operations

Post cyclone priority will be given to rescue of personnel, medical assistance, clearing debris etc.

Responsibilities assigned to HoDs are as detailed below;

In charge	Responsibility
COO	Coordinate with all HoDs for damage/loss assessment, revival procedures.
PRO	Coordination with district authorities for assistance required.
Head of Admin	Damage report if any at colony area. Revival of: • Canteen • Motor Transport • Offices • Roads
Head of Bulk & Container Operations	Report on type/extent of damage at yard, berth, CFS etc. Revival of operational area. Communication to commercial team on the timelines for resuming operations.
Head of IT	Damage assessment to IT infrastructure. Revival of IT system
Head of Asset Maintenance	Assessment of structural damages and estimating the extent of damage to equipment. Checking healthiness of power distribution system and restoration of Power. Checking healthiness of equipment and restoration.
Head of Projects	Assessment of damage to Port infrastructures and ongoing projects.
Head of HSSE Improvement	To coordinate with HoDs for rescue/emergency response. Arrange for the Medical emergency response aids. Security tightened to prevent pilferage. Deployment of security staff for rescue/revival.

Head of Marine	Damage assessment to Marine and navigational equipment. Checking healthiness of all the marine and navigational equipment and restoration.
Head of Legal	To coordinate insurance company for processing of insurance claim.

16.8. Damage assessment and port operation revival team.

- Head of Projects
- Head of Finance
- Head of Asset Maintenance
- Head of Container Ops
- Head of Bulk Ops
- Head of HSSE Improvement
- Head of Admin
- Sr Manager (Projects)

17. Emergency at Liquid Berth

An emergency is a non-routine situation resulting from an accident that gives rise to a spill or a fire. Some of the emergency situations that may occur are:

- Bursting of flexible hose and spill of Cargo.
- Fire or Explosion on Berth
- Fire on a Tanker at a Terminal

Action plan

17.1. Bursting of the flexible hose and Spill of Cargo

- The shore and ship ESD to be pressed for stopping the discharge
- In case the Cargo has spilled in large quantity, the area has to be immediately flooded with foam with the help of two foam generators available on the jetty to restrict the vaporisation of the hydrocarbons and subsequent formation of vapour cloud which can explode.
- If the spillage is limited the vapours should be dispersed with spray until the vapours have completely dispersed and there is no danger of formation of vapour cloud.
- The area to be continuously monitored with the help of explosive meter for monitoring the formation of explosive vapour cloud.
- The dispersion operation to be done under instruction and supervision of Manager (HSSE)
- Personnel other than firemen and Terminal representatives to be removed from the area to facilitate the operation.
- The operations to commence after confirmation that no hydrocarbon vapours are present in the area.

17.2. Fire or Explosion on Berth

Action by Ships:

- Should a fire or explosion occur on a berth, the ship or ships at the berth must immediately report the incident to the PORT CONTROL by the quickest possible method (VHF/UHF, telephone contact, sounding ship's siren etc).
- Cease all cargo, bunkering, ballasting and tank cleaning operations.
- All cargo hoses should be drained ready for disconnection.
- The ship's fire-mains should be pressurised and water fog applied in strategic places.

- The ship's engines, steering gear and unmooring equipment must be brought to a state of immediate readiness.
- A pilot ladder should be deployed on the offshore side.
- Ensure the Emergency towing off pennants are rigged as per the requirement.

Action by Ships at Other Berths:

- On hearing the Emergency Siren being sounded or on being otherwise advised of a fire at the terminal, a ship at a berth not directly involved in the fire should shut down all cargo, bunkering and ballasting operations.
- Fire-fighting systems should be brought to a state of readiness.
- Engines, steering gear and mooring equipment should be made ready for immediate use.

17.3. Fire on a Tanker at a Terminal

Action by Ship's Personnel:

- If a fire breaks out on a tanker while at a terminal, the tanker must raise the alarm by sounding the recognised alarm signal consisting of a series of long blasts on the ship's whistle.
- Each blast being not less than 10 seconds in duration unless the terminal has notified the ship of some other locally recognised alarm signal.
- Cease all cargo, bunkering or ballasting operations.
- Activate Ship Fire Plan.
- Main engines and steering gear brought to a standby condition.
- Once the alarm has been raised, responsibility for fighting the fire on board the ship will rest with the Master or other Responsible Officer assisted by the ship's crew.
- On mobilisation of the Port fire-fighting forces and equipment, the Master or other Responsible Officer, in conjunction with the professional fire-fighters, must make a united effort to bring the fire under control.
- Ensure the Emergency towing off pennants are rigged as per the requirement.

Action by Port and Terminal Personnel:

- On hearing a tanker sounding its fire alarm, the person in charge of a berth should immediately advise the control room.
- The terminal control room personnel should sound the Port Emergency Siren, inform the port authority and

commence shutting down any loading, discharging, bunkering or ballasting operations that may be taking place.

- The Port's Disaster Management plan should be activated and this may involve shutting down cargo, bunkering and ballast handling operations on ships on adjacent or neighbouring berths.
- All other ships at the terminal should be informed of the emergency and, where considered necessary, make preparations to disconnect hoses and bring their engines and steering gear to a state of readiness.
- Port control room will summon Tugs to assist in fighting the fire until a decision is made by the person in overall control whether or not to use them to assist in the evacuation of unaffected ships.
- The HSSE Dept should be responsible for summoning any outside assistance, such as the civil fire brigade, rescue launches, medical aid and ambulances, police, harbour authority and pilots.

The above emergency procedures may be summarised for the information of visiting ships in a fire instructions notice, as per below:

Fire Action - Ship

Fire on your Ship

- Raise alarm
- Fight fire with aim of preventing spread
- Inform terminal
- Cease all cargo/ballast operations and close all valves
- Stand by to disconnect hoses or arms
- Bring engines to standby

Fire on another Ship or Ashore

- Raise alarm

Stand by, and when instructed:

- Cease all cargo/ballast operations and close all valves
- Disconnect hoses or arms
- Bring engines and crew to standby, ready to unberth

Fire Action - Ashore

Fire on a Ship

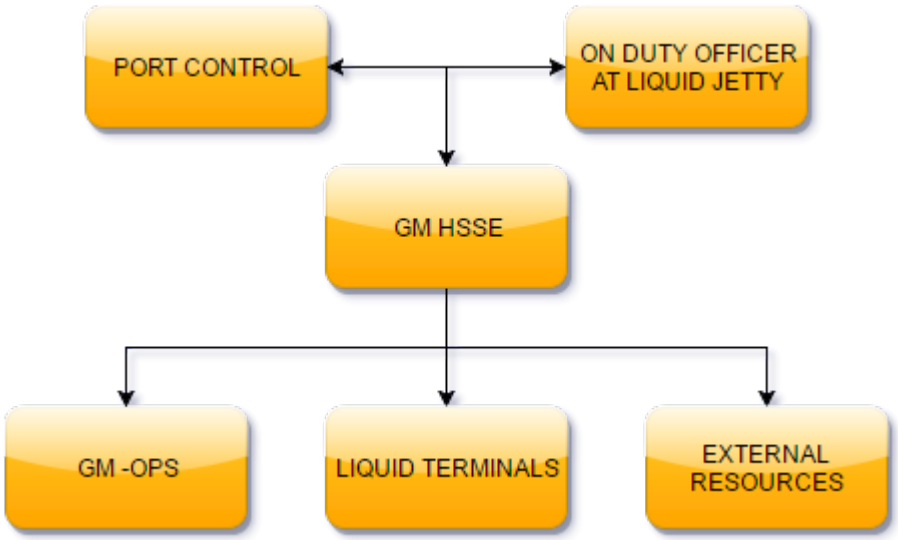
- Raise alarm
- Contact ship
- Cease all cargo/ballast operations and close all valves
- Stand by to disconnect hoses or arms
- Stand by to assist fire-fighting
- Inform all ships
- Implement terminal emergency plan

Fire Ashore

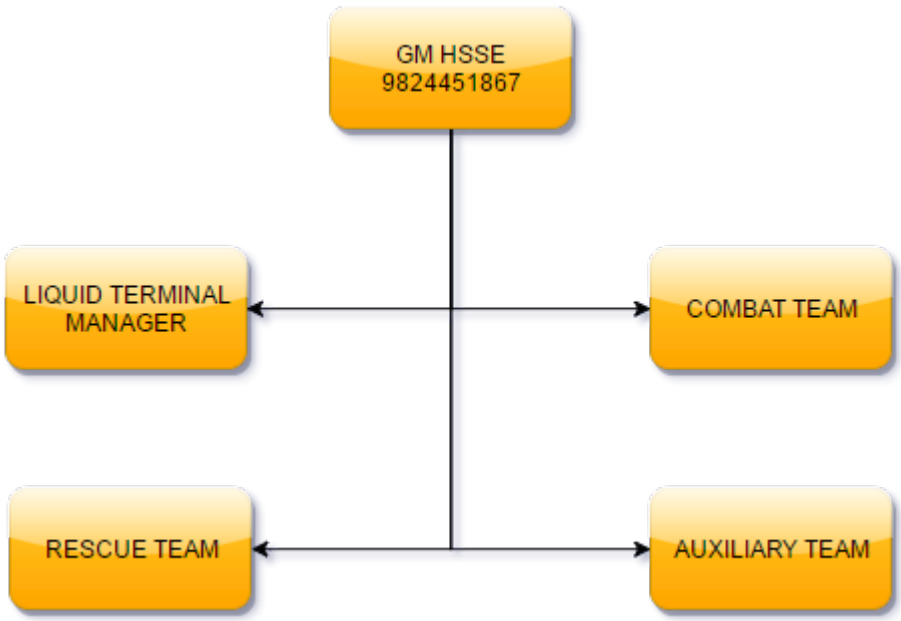
- Raise alarm
- Cease all cargo/ballast operations and close all valves
- Fight fire with aim of preventing spread
- If required, stand by to disconnect hoses or arms
- Inform all ships
- Implement terminal emergency plan

In case of fire, do not hesitate to raise the alarm

17.4. FLOW OF INFORMATION



17.5. COMMAND CHART



18. Road Transport Accident

The transport accident that can happen in and around the port has been divided into two part;

- Petroleum/Oil tanker accident
- LPG/LIQUID PRODUCT tanker accident

18.1. Petroleum/Oil tanker accident

The oil tankers moving inside the port for delivery to the vessels carry oils such as HSD, LDO, FO etc. and carrying product from/to Oil Terminals.

The oil tankers unlike other vehicles can meet accidents, which will cause the oil to be spilled.

The person sighting such accident should contact the port control for sending the fire fighting team at site.

Mgr (HSSE) on intimation from port control to reach site and take appropriate steps for containment/recovery of the oil. The owner/contractor of the tanker has to be immediately contacted for information/recovery of the spilled oil.

18.2. LPG/LIQUID CARGO tanker accident

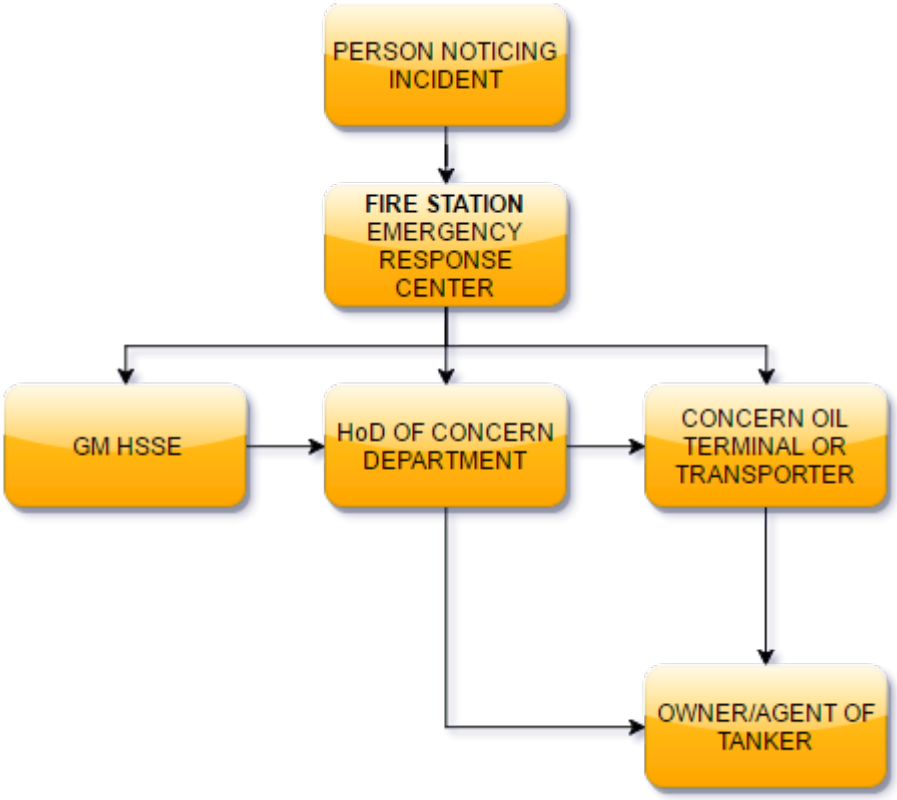
In case of LPG/LIQUID CARGO tanker accident the following steps have to be taken immediately to avoid a major disaster.

- Immediately contact, Terminal Manager of respective terminal.
- Contact fire station or Port control
- All transport up and down from the accident site should be stopped.
- No vehicle to move within 100mtr of the accident site.
- No unauthorised person to go near the tanker.
- No flammable material to be brought near the tanker

Depending upon the amount of LPG that has leaked, Head of HSSE can order for evacuation of any surrounding area for Safety of personnel of that area.

Head of HSSE to forward a detailed report on the action taken to COO and MD.

18.3. FLOW OF INFORMATION IN CASE OF OIL/LPG TANKER ACCIDENT



19. Building Collapse

In case of building/facility collapse, the Emergency response Center (Fire Station) to be immediately contacted and activation of the emergency plan will be as per following detailed procedure;

Emergency Response Center-

- ERC on receiving the information of collapse to contact Head of HSSE Improvement, Head of Projects, Head of Asset Maintenance.

Head of Admin, Doctor, Sr. Officer (admin), Security and MT Staff

- To contact hospitals at Rajula & Mahuva for medical assistance and shifting of casualties if any.
- Transportation for shifting the casualties if any.
- Contact the local administration for any assistance.
- To constitute a committee with representative from Project, Ops and Safety for finding the cause of collapse. Report of the same to be forwarded to COO and MD.
- Deployment of adequate security persons at site for men and material movement control.
- Press statement in consultation with COO & MD.

Head of Asset Maint, Head of Ops - Team of Engg, Safety & Ops

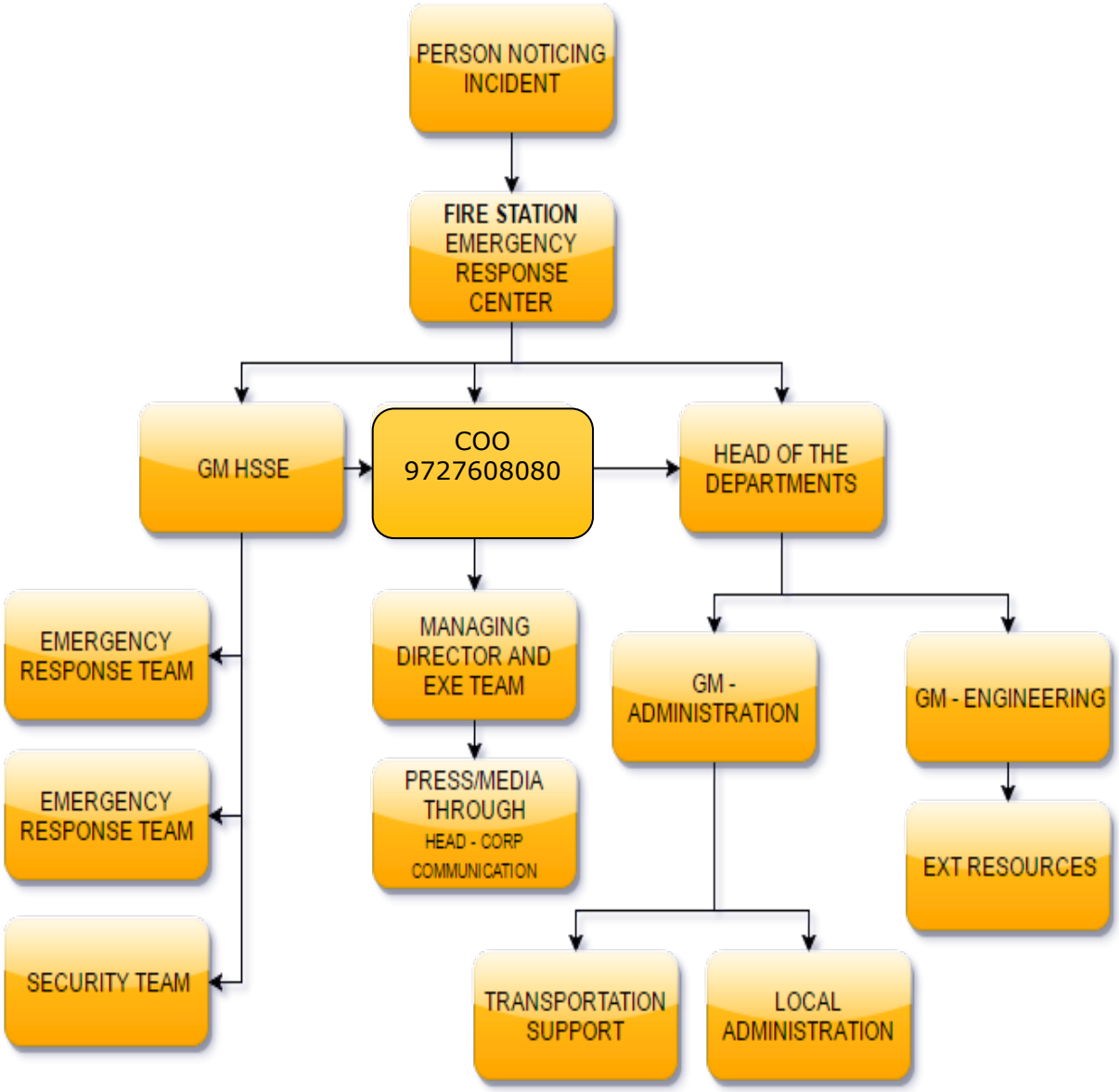
- To arrange for cranes & forklifts
- Keep the fire fighting system standby
- Rush the rescue team from fire station at site
- Coordinate the rescue.
- Electrical supply at site during night

All port vehicles will be directed to site for emergency work. All mechanical & electrical persons will report at site near the assembly point.

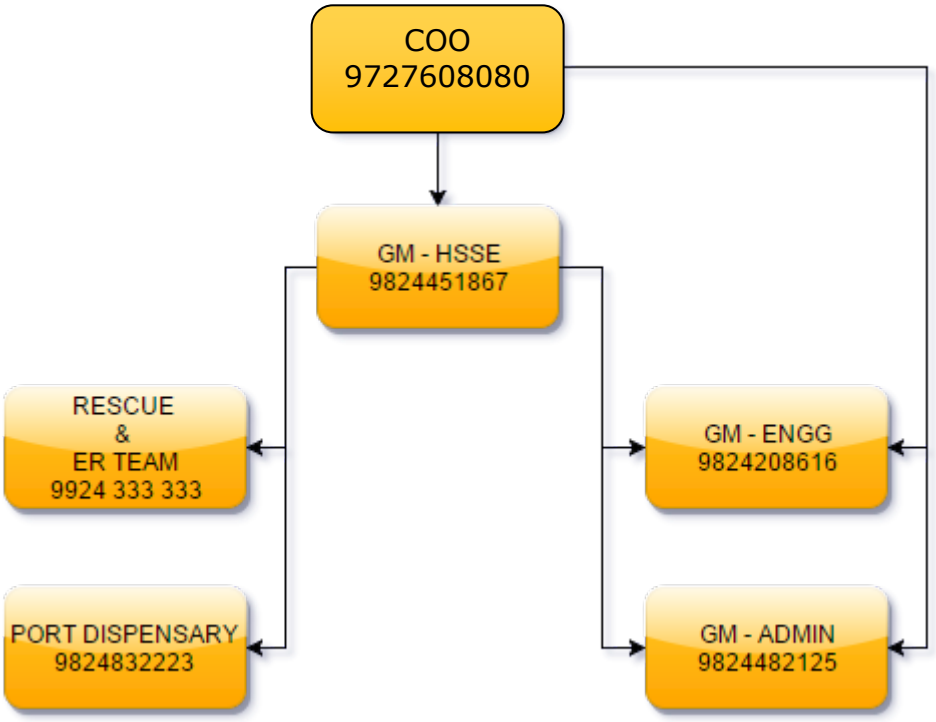
No person/equipment to move near the site of collapse without the permission of Head of Operations.

All cargo traffic (up/down) moving in proximity of the site will be closed till instruction for movement is given by Head of Operations.

19.1. FLOW OF INFORMATION IN CASE OF BUILDING COLLAPSE



19.2. COMMAND CHART



20. IMDG Emergency Response

Dangerous Cargo spill can occur due to following reasons;

- DG Cargo container damage during handling from/to Vessel;
- DG cargo container toppling from TTs.
- TTs banging into DG cargo container.
- DG cargo container slipping from stack due to human error or natural calamity (earthquake, cyclone etc.)

Immediate intimation of the spill to Fire Station, DG Coordinator (Sr Manager – HSSE, Head of HSSE and Head of Container Operations.

Basic Steps for hazardous spill/fire response;

- Area to be vacated and barricaded.
- **In the event of a spillage, only persons trained to handle / response such emergencies.**
- Intimation to be given to Fire Station, DG Coordinator, Head of Container Operations.
- Check the Class of the cargo and other details mention on the placard (from the safe distance);
- Check the MSDS from Vendor or from MSDS Station at Fire Station and Operations Building.
- Use IMDG and ERG books (kept in MSDS Station at Fire Station) for necessary guidance;
- For detailed response, see the next sub-section with Class wise response.
- **Online resources**
  - **HAZCHECK**
    - http://www.dg-maersk.com
    - User ID : vba082
    - Password : Apmt@1234
  - **ERG 2016**
    - ERG2016 App on Desktop
  - **CAMEO SUITE**
    - CAMEO is a system of software applications used to plan for and respond to chemical emergencies. Use ALOHA Software which is a modelling program and used to plan for and respond to chemical emergencies.
    - **ALOHA** allows to enter details about a real or potential chemical release, and then it will generate

threat zone estimates for various types of hazards. ALOHA can model toxic gas clouds, flammable gas clouds, BLEVEs (Boiling Liquid Expanding Vapor Explosions), jet fires, pool fires, and vapor cloud explosions. The threat zone estimates are shown on a grid in ALOHA, and they can also be plotted on maps in **MARPLOT®**. The red threat zone represents the worst hazard level, and the orange and yellow threat zones represent areas of decreasing hazard.

- Currently following people are trained on use of Cameo Suite
  - Vishal Barve
  - Bighneshore Singh
  - Sanjay Singh

- Only if possible, shift the container to containment bund or use the Spill Containment tray (Metal or Portable based on the area, Chemical and spillage)
- Firefighting/containment of spill to be carried out under supervision of Manager – HSSE.
- Post containment area to be checked for any flammable vapour prior to resuming work at the incident site.

Post containment of spill:

- Contained material to be kept at a safer location.
- Intimation given to Head of Legal for processing insurance claim.
- Information given to Sr. Manager (Container ops) for intimating container line of the incident.
- Intimation to Sr Manager Environment with all the details of Spill;
- Disposal of contained cargo, waste generated as per the guidelines from environment authorities;
- Incident report to be prepared;
- Joint survey to be carried out with surveyors appointed by cargo owner and container line.

20.1. IMDG Class-wise Emergency Response

CLASS 1 (EXPLOSIVES)

POTENTIAL HAZARDS:
MAY EXPLODE AND THROW FRAGMENTS UPTO 1 KM OR MORE IF FIRE REACHES CARGO

HEALTH
- Fire may produce irritating, corrosive and/or toxic gases.
- Contact may cause burns to skin and eyes.

PUBLIC SAFETY
- Isolate spill or leak area immediately for at least 500 meters (1/3 mile) in all directions.
- Move people out of line of sight of the scene and away from windows.
- Keep unauthorized personnel away.
- Stay upwind.
- Ventilate closed spaces before entering.

EMERGENCY RESPONSE
FIRE
- DO NOT fight fire when fire reaches cargo! Cargo may EXPLODE!
- Stop all traffic and clear the area for at least 1600 meters (1 mile) in all directions and let burn.
- Do not move cargo or vehicle if cargo has been exposed to heat.
- Use plenty of water - FLOOD it! If water is not available, use CO2, dry chemical or dirt.

SPILL OR LEAK
- ELIMINATE all ignition sources (smoking, flares, hot work activity, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- DO NOT OPERATE RADIO TRANSMITTERS WITHIN 100 meters (330 feet) OF ELECTRIC DETONATORS.

PPE

- Wear positive pressure self-contained breathing apparatus (SCBA)

FIRST AID

- Move victim to fresh air.
- Call Port emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

CLASS 2 (GASES)

POTENTIAL HAZARDS:

FIRE OR EXPLOSION

- May be ignited by heat, sparks or flames.
- May form explosive mixtures with air.
- Vapors from liquefied gas are initially heavier than air and spread along ground.
- Vapors may travel to source of ignition and flash back.
- Some of these materials may react violently with water.
- Cylinders exposed to fire may vent and release flammable gas through pressure relief devices.
- Containers may explode when heated.
- Ruptured cylinders may rocket.

HEALTH

- May cause toxic effects if inhaled or absorbed through the skin
- Vapors are extremely irritating.
- Fire will produce irritating, corrosive and/or toxic gases.
- Runoff from fire control may cause pollution.

PUBLIC SAFETY

- Isolate spill or leak area immediately for at least 500 meters (1/3 mile) in all directions.
- Move people out of line of sight of the scene and away from windows.
- Keep unauthorized personnel away.
- Keep out of low areas.
- Stay upwind.

- Ventilate closed spaces before entering.

EMERGENCY RESPONSE:
SMALL FIRE
- Dry chemical or CO2.

LARGE FIRE
- Water spray, foam.
- Move containers from fire area if you can do it without risk.
- Do not get water inside containers.
- Damaged cylinders should be handled only by specialists.

FIRE INVOLVING TANKS
- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Do not direct water at source of leak or safety devices; icing may occur.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.

SPILL or LEAK
- Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- If possible, turn leaking containers so that gas escapes rather than liquid.
- Prevent entry into waterways, sewers, basements or confined areas.
- Do not direct water at spill or source of leak.
- Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.
- Isolate area until gas has dispersed.

PPE
- Wear positive pressure self-contained breathing apparatus (SCBA)
- Wear protective clothing that is specifically recommended in MSDS.

FIRST AID
- Move victim to fresh air.
- Call emergency medical service.
- Give artificial respiration if victim is not breathing.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of

a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with liquefied gas, thaw frosted parts with lukewarm water.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Keep victim warm and quiet.
- Keep victim under observation.
- Effects of contact or inhalation may be delayed.
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Refer Port Medical Emergency Response Plan

CLASS 3 (Flammable Liquids)

POTENTIAL HAZARDS:
FIRE OR EXPLOSION
- HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.
- Vapors may form explosive mixtures with air.
- Vapors may travel to source of ignition and flash back.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Vapor explosion hazard indoors, outdoors or in sewers.
- Those substances designated with a (P) may polymerize explosively when heated or involved in a fire.
- Runoff to sewer may create fire or explosion hazard.
- Containers may explode when heated.
- Many liquids are lighter than water.

HEALTH
- Inhalation or contact with material may irritate or burn skin and eyes.
- Fire may produce irritating, corrosive and/or toxic gases.
- Vapors may cause dizziness or suffocation.
- Runoff from fire control may cause pollution.

PUBLIC SAFETY

- As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind.
- Keep out of low areas.
- Ventilate closed spaces before entering.

EMERGENCY RESPONSE:
CAUTION: All these products have a very low flash point: Use of water spray when fighting fire may be inefficient.

SMALL FIRE

- Dry chemical, CO2, water spray or alcohol-resistant foam.
- Call Fire Tender (9924333333)

LARGE FIRE

- Water spray, fog or alcohol-resistant foam.
- Do not use straight streams.
- Move containers from fire area if you can do it without risk.
- Fall Fire Tender (9924 333 333) and use Hydrant System for fire fighting.

FIRE INVOLVING TANKS OR CAR/TRAILER LOADS

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

SPILL OR LEAK

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- If possible shift the leaking container to Spill Containment bund area, for spill containment on the site use Metal or PVC Containment berms.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.

- Prevent entry into waterways, sewers, basements or confined areas.
- A vapor suppressing foam may be used to reduce vapors.
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
- Use clean non-sparking tools to collect absorbed material.

LARGE SPILL

- Shift the leaking container to Spill Containment bund area, for spill containment on the site use Metal or PVC Containment berms.
- Water spray may reduce vapor; but may not prevent ignition in closed spaces.

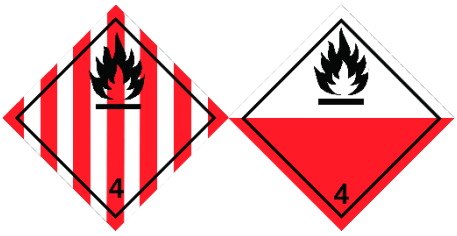
PPE

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

FIRST AID

- Move victim to fresh air.
- Call emergency medical service.
- Give artificial respiration if victim is not breathing.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- Keep victim warm and quiet.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Refer Port Medical Emergency Response Plan.

CLASS 4 (except 4.3) (Flammable Solids)



POTENTIAL HAZARDS:

FIRE OR EXPLOSION

- Flammable/combustible material.
- May be ignited by heat, sparks or flames.
- When heated, vapors may form explosive mixtures with air: indoors, outdoors and sewers explosion hazards.
- May re-ignite after fire is extinguished.
- Corrosive substances in contact with metals may produce flammable hydrogen gas.
- Contact with metals may evolve flammable hydrogen gas.
- Containers may explode when heated.
- Produce flammable and toxic gases on contact with water.
- Runoff may create fire or explosion hazard.
- Some react vigorously or explosively on contact with water.

HEALTH

- Highly toxic: contact with water produces toxic gas, may be fatal if inhaled.
- Inhalation or contact with vapors, substance or decomposition products may cause severe injury or death.
- Fire will produce irritating, corrosive and/or toxic gases.
- Runoff from fire control may be corrosive and/or toxic and cause pollution.

PUBLIC SAFETY

- As an immediate precautionary measure, isolate spill or leak area in all directions for at least 25 meters (75 feet) for solids.
- Stay upwind.
- Keep unauthorized personnel away.
- Keep out of low areas.

EMERGENCY RESPONSE:

SMALL FIRE

- Water spray, wet sand or wet earth.
- Fall Fire Tender.

LARGE FIRE

- Water spray or fog.
- Use Fire Hydrant System for firefighting.

FIRE INVOLVING TANKS OR CAR/TRAILER LOADS

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.

SPILL OR LEAK

- Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire.
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- Do not touch or walk through spilled material.
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Stop leak if you can do it without risk.

SMALL SPILL

- Cover with water, sand or earth. Shovel into metal container and keep material under water.

LARGE SPILL

- Prevent entry into waterways, sewers, basements or confined areas.
- Shift the container to Spill Containment Bund area.

PPE

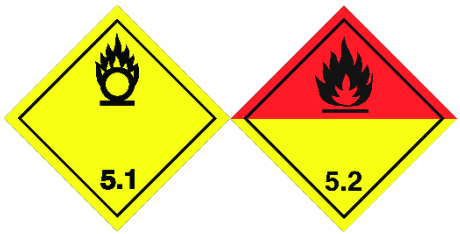
- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

FIRST AID

- Move victim to fresh air.
- Call emergency medical service.
- Refer Port Medical Emergency Response Plan.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.

- In case of contact with substance, keep exposed skin areas immersed in water or covered with wet bandages until medical attention is received.
- Removal of solidified molten material from skin requires medical assistance.
- Remove and isolate contaminated clothing and shoes at the site and place in metal container filled with water. Fire hazard if allowed to dry.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.
- Keep victim warm and quiet.
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

CLASS 5 (Oxidiser & Organic Peroxides)



POTENTIAL HAZARDS:

FIRE OR EXPLOSION

- May explode from friction, heat or contamination.
- These substances will accelerate burning when involved in a fire.
- May ignite combustibles (wood, paper, oil, clothing, etc.).
- Some will react explosively with hydrocarbons (fuels).
- Containers may explode when heated.
- Runoff may create fire or explosion hazard.

HEALTH

- TOXIC; inhalation, ingestion or contact (skin, eyes) with vapors, dusts or substance may cause severe injury, burns or death.
- Fire may produce irritating and/or toxic gases.
- Toxic fumes or dust may accumulate in confined areas (basement, tanks, hopper/tank cars, etc.).
- Runoff from fire control or dilution water may cause pollution.

PUBLIC SAFETY

- As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.
- Keep unauthorized personnel away.

- Stay upwind.
- Keep out of low areas.
- Ventilate closed spaces before entering.

EMERGENCY RESPONSE

SMALL FIRE

- Use water. Do not use dry chemicals or foams. CO2 or Halon® may provide limited control.
- Call Fire Tender. (9924 333 333)

LARGE FIRE

- Flood fire area with water from a distance.
- Do not move cargo or vehicle if cargo has been exposed to heat.
- Move containers from fire area if you can do it without risk.
- Do not get water inside containers: a violent reaction may occur.
- Use Hydrant System for firefighting.

FIRE INVOLVING TANKS OR CAR/TRAILER LOADS

- Cool containers with flooding quantities of water until well after fire is out.
- Dike fire-control water for later disposal.
- BEWARE OF POSSIBLE CONTAINER EXPLOSION.
- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn

SPILL OR LEAK

- Keep combustibles (wood, paper, oil, etc.) away from spilled material.
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Use water spray to reduce vapors or divert vapor cloud drift.
- Prevent entry into waterways, sewers, basements or confined areas.

SMALL SPILL

- Flush area with flooding quantities of water.
- Use Spill Kits and Spill containment berms.

LARGE SPILL

- Shift container to Spill Containment bund area.
- Prevent entry into waterways, sewers, basements or confined areas.

- DO NOT CLEAN-UP OR DISPOSE OF, EXCEPT UNDER SUPERVISION OF A SPECIALIST.

PPE

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing will only provide limited protection

FIRST AID

- Move victim to fresh air.
- Call emergency medical service.
- Refer Port Medical Emergency Response Plan.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- In case of contact with substance, keep exposed skin areas immersed in water or covered with wet bandages until medical attention is received.
- Removal of solidified molten material from skin requires medical assistance.
- Remove and isolate contaminated clothing and shoes at the site and place in metal container filled with water. Fire hazard if allowed to dry.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.
- Keep victim warm and quiet.
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

CLASS 6 (POISON (TOXIC) AND INHALATION HAZARD)

POTENTIAL HAZARD:

HEALTH

- TOXIC; inhalation, ingestion or skin contact with material may cause severe infection, disease, injury or death.
- Contact with molten substance may cause severe burns to skin and eyes.

- Avoid any skin contact.
- Effects of contact or inhalation may be delayed.
- Fire may produce irritating, corrosive and/or toxic gases.
- Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution.

SPILL OR LEAK

- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- DO NOT CLEAN-UP OR DISPOSE OF, EXCEPT UNDER SUPERVISION OF A SPECIALIST.

PPE

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended in MSDS.

FIRST AID

- CAUTION: Victim may be a source of contamination.
- Move victim to isolated area
- Call emergency medical service.
- Refer Port Medical Emergency Response Plan.
- Give artificial respiration if victim is not breathing.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper
- respiratory medical device.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- For minor skin contact, avoid spreading material on unaffected skin.
- Keep victim warm and quiet.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- For further assistance, contact your local Poison Control Center mentioned in MERP.

CLASS 8 (CORROSIVE)

POTENTIAL HAZARD

HEALTH

- TOXIC; inhalation, ingestion or skin contact with material may cause severe injury or death.
- Contact with molten substance may cause severe burns to skin and eyes.
- Avoid any skin contact.
- Effects of contact or inhalation may be delayed.
- Fire may produce irritating, corrosive and/or toxic gases.
- Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution.

SPILL OR LEAK

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.

PPE

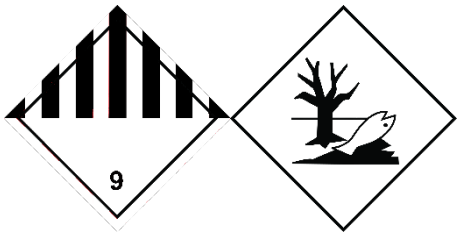
- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended in MSDS. (TyChem Suits as per requirement)

FIRST AID

- Move victim to isolated area
- Call emergency medical service.
- Refer Port Medical Emergency Response Plan.
- Give artificial respiration if victim is not breathing.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Remove and isolate contaminated clothing and shoes.

- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- For minor skin contact, avoid spreading material on unaffected skin.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

CLASS 9 (MISCELLANEOUS)



POTENTIAL HAZARD

FIRE OR EXPLOSION
- Refer MSDS.

HEALTH
- Inhalation of material may be harmful.
- Contact may cause burns to skin and eyes.
- Inhalation of Asbestos dust may have a damaging effect on the lungs.
- Fire may produce irritating, corrosive and/or toxic gases.
- Some liquids produce vapors that may cause dizziness or suffocation.
- Runoff from fire control may cause pollution.
- Refer MSDS.

PUBLIC SAFETY
- As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.
- Keep unauthorized personnel away.
- Stay upwind.

EMERGENCY RESPONSE
- Refer MSDS

SPILL OR LEAK
- Refer MSDS
- Shift Container to Spill Containment Bund area.

FIRST AID

- Move victim to fresh air.
- Call emergency medical service.
- Refer Port Medical Emergency Response Plan.
- Refer MSDS.
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

21. Chlorine Leakage from Cylinder

Chlorine Gas
Chlorine is a greenish yellow gas with pungent and irritating odour at room temperature. It is highly reactive, toxic and hazardous in nature, at the same time very useful for mankind.

Usage and Storage in Port
Chlorine in Gas form is used in Port at Narmada Reservoir and stored in the Port Main Stores. Chlorine is stored in 100 kg cylinders.
Liquid Chlorine is used in Swimming pool.
Chlorine containers/ cylinders should be stored only in a cool, dry well ventilated and covered place, and kept away from heat, as it emits highly toxic fumes when heated.

Potential Health Effects:
SKIN CONTACT: High concentrations can cause severe irritation and tissue destruction. Symptoms include burning, prickling sensations and blisters.
EYE CONTACT: Causes severe burns. Contact with rapidly expanding gas may cause frostbite.
INHALATION: Toxic by inhalation. Severely corrosive to the respiratory system. High concentrations may cause unconsciousness and death.
FIRST AID: Keep the victim warm, quiet and under observation. Avoid direct contact with this chemical. Move the victim to fresh air. Give artificial respiration only if breathing has stopped. If breathing is difficult, give oxygen. Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes.

EMERGENCY RESPONSE:

- Provide the local exhaust or process enclosure ventilation system.
- Move all personnel perpendicular to windward side or towards higher elevation, as chlorine is 2.5 times heavier than air, and spreads on the ground, in no time.
- As chlorine is soluble into water, water should never be used during the chlorine leak. This is because chlorine reacts with water and forms hydrochloric acid, which is highly corrosive.
- To attend the chlorine leak, only trained persons should be allowed to attend leak, with suitable mask and respiratory protective equipment. Eye protection is imperative due to chlorine's irritating nature.
- To stop Chlorine leak, close all chlorine container valves by turning in a clockwise direction. Leaks around valve stem may

be stopped by tightening packing nuts in the same clockwise direction.

- If the leakage is not from valve, use Chlorine Cylinder Kit to arrest the leakage.
- While handling Chlorine, PVC & Polypropylene are unsuitable for dry and wet chlorine service. Polyethylene and fibreglass reinforced epoxy give suitable service up to 75 degree Celsius. At normal temperature & pressure, rubber lined equipment are also advised.

22. FIRE IN FERTILISER SHED

Fertiliser Shed area in Port is registered as Factory under Factories Act. Fertiliser shed is having inventory of different types of fertilisers and packing material. It's an open area with good ventilation and access.

22.1. Hazard Identification:

Fertiliser shed is mainly having storage of different types of fertilisers like Urea, DAP etc which are mostly incombustible, however packing material used for fertiliser are mostly Polypropylene bags and threads which are combustible in nature.
Fertiliser shed is equipped with fertiliser packing machinery and conveyor system which runs of electricity. Power supply and distribution panels installed centrally which are equipped with DISH approved Fire Suppression system.
There is no permission to store or fill the fuel in the fertiliser shed.

22.2. Emergency Response:

Despite of very minimal inventory of combustible material this area considered critical as we have large numbers of manpower in the area hence it is important to have emergency response for this specific area.

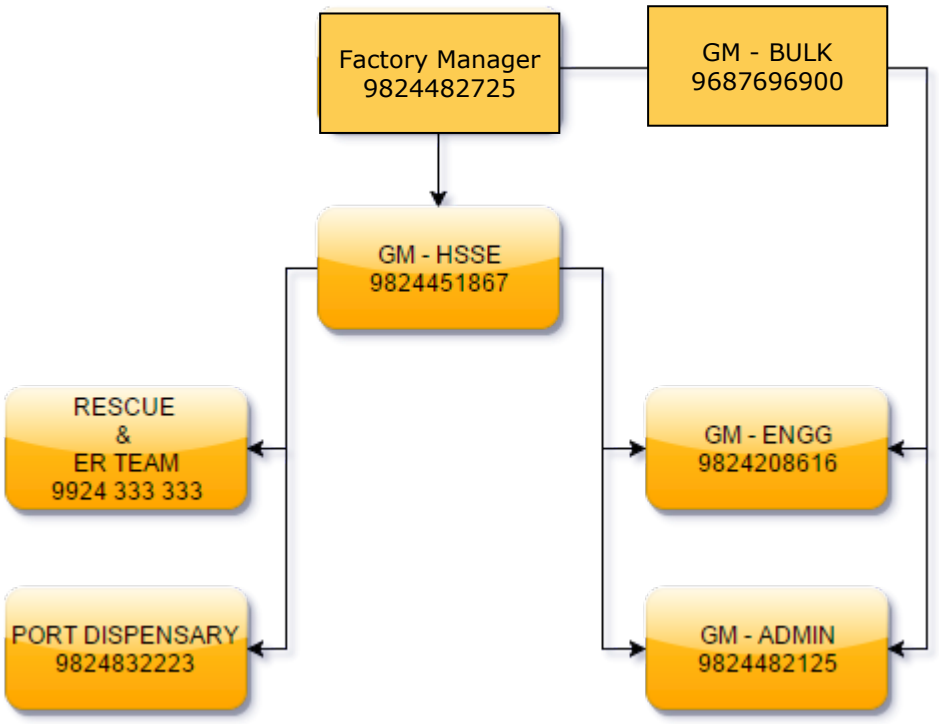
Fertiliser Shed Electric room panels are equipped with approved type Fire Suppression system. CO_2 Type and ABC Type portable Fire Extinguishers also placed at the Electric room.

Portable Fire Extinguishers are also placed near each MBU.

In case of any type of Fire (small or large), Port Emergency Response Team must be called. Port Emergency number (9924 333 333) is displayed at various locations.

There are Two Safe assembly locations are identified for Fertiliser Shed and have display board. In case of any emergency all the people should move safely towards designated safe assembly location.

22.3. Command Chart



23. EVACUATION

Depending on the location and type of incident, evacuation of all or part of the Port may be required. Where evacuation is implemented, the Evacuation Centre (EC) location must be decided based on both the safety of, and the safest route to, the EC.
Decision on Evacuation shall be taken by the Emergency Operations Coordinator.
Evacuated personnel should not pass close to, or downwind of, any hazardous incident wherever possible. Evacuation to an Emergency Services should be avoided as this may hamper their operations.
Evacuation Centre locations should have an alternative exit route after documentation procedures and should not be at an inescapable location.

In most cases the primary EC will be the Port Club house, however in the event that this location is inaccessible, is in a danger zone or would involve passing close to or downwind of the incident, an alternative EC should be decided on by the Site Crisis Management Team.

Care should be exercised to ensure evacuees do not leave the site entirely without reporting to the EC to ensure accurate records are maintained and valuable time is not wasted searching for 'unaccounted for' persons.

A list of Evacuation Centres (EC) is shown below:

1. Port Club House
2. Port Railway Running Room
3. BOD Area

23.1. Command Chart