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# Mock drill is the Ideal Method of Training to Retain KSA (Knowledge, Skills, Abilities) for the Employees in Hydrocarbon Industries

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**ABSTRACT**

*Purpose – The purpose of this article is to better understand Emergency preparedness for the incidents likely to happen in the hydrocarbon industries reference to Offshore FPSO, and to prove empirically the frequent mock drills are the ideal method of training to retain KSA for the employees Design/Methodology/Approach – the author used company available records /document for 4 years and in-depth interviews with performers from a single organization who participated in a mock drill program .Qualitative methodology used is a strong element of this study as it provides good information regarding the timing of activities. The research design mode is interviewing team leaders and members, revealed important factors affecting the drill Findings – The report reveals the importance of drill, members' characteristics, and environmental factors in the performing the drill and provides useful insights regarding the design and management of the drill type of training*

KEYWORDS : Knowledge, Skills, Abilities, Attitudes, Floating Production Storage and Offloading Emergency Response

## Introduction

### Hydrocarbon sector-a Global and Indian scenario

The global energy system sits at the nexus of some of the deepest dilemmas of our times: prosperity versus poverty; globalization versus security; and growth versus the environment. Current energy trends are patently unsustainable — socially, environmentally, economically. The oil market itself is also undergoing major and lasting internal structural change, with National Oil Companies (NOCs) in the ascendancy against the Integrated Oils Companies (IOCs)

PNV Nair (2012) in The Hydrocarbons Vision - 2025 quotes In India The hydrocarbons sector plays vital role in the economic growth of the country. It is necessary to have an in-term policy for the hydrocarbons sector, which would facilitate meeting the future needs of the country. The Hydrocarbons Vision - 2025 lays down the framework which would guide the policies relating to the hydrocarbons sector for the next 25 years Oil and gas continue to play a pre-eminent role in meeting the energy requirements of the country. 45% of the total energy needs would be met with the oil and gas sector.

With regard to the energy sector in general and the hydrocarbon sector in particular, the E&P vision will be to undertake a total appraisal of the Indian sedimentary basins for hydrocarbon potential and to optimize production of crude oil and natural gas in the most efficient manner. This can be achieved through intensive exploration efforts endorsed by effective mobilization and the infusion of technology and capital.

### Indian legal requirements

After the incident of Bhopal gas disaster, in India the Factories Act has been amended and a new chapter i.e. Chapter IVA – provision relating to hazardous processes has been added to the Factories Act with the addition of new provisions Sec 41A, 41B, 41C, 41D, 41E, 41G & 41H covering all hazardous process industries. Under the provision of Sec 41B (4) every occupier shall with the approval of the Chief Inspector of Factories draw up an On-site Emergency Plan and detailed disaster control measures for his factory and make known to the workers employed therein and to the general public living in the vicinity of the factory the safety measures required to be taken in the event of an accident taking place. This is the statutory provision laid down in the act for preparation of an On-site Emergency Plan to control disaster in the factories. In view of the hazards associated with hydrocarbon processing industries, in India it is obligatory, under the Factories Act, 1948 (amended in 1987) and Environment (Protection) Act, 1986 and Petroleum and Natural Gas Regulatory Board (Codes of Practices for Emergency Response and Disaster Management Plan (ERDMP)) Regulations, 2008 notified in January 2010 to develop our own on-site emergency Plan.

Emergencies can be categorized into three broad levels on the basis of seriousness And response requirements;

**(a) Level 1: This is an emergency or an incident which**

I. Can be effectively and safely managed, and contained within the site, location or installation by the available resources
ii. Has no impact outside the site, location or installation
iii. Is unlikely to be a danger to life, the environment or to company assets or reputation

**(b) Level 2: This is an emergency or an incident which**

I. Cannot be effective and safely managed or contained on the site, location. Or installation by available resource and additional support is required
ii. Is having, or has the potential to have an effect beyond the site, location or Installation and where external support of mutual aid partner may be Involved
iii. Is likely to be a danger to life, to the environment, to company assets and reputation.

**(c) Level 3: This is an emergency or an incident which**

I. is catastrophic and is likely to affect the population, property and environment inside and outside the installation, and management & control is done by District Administration. Although the level-III emergency falls under the purview of District Authority but till they step in, it shall be the responsibility of the unit to manage the emergency.

Note: Level-I & Level-II shall normally be grouped as on-site emergency and Level-III as an off-site emergency. Off-site Disaster Management Plan will be activated in case of Level 3 emergency situation.

Some Indian companies, conducts mock drill exercise twice a year to ascertain the preparedness in case of any emergency in the plant. A mock drill on fire fighting and rescue operations was held in which all the emergency coordinators and team members actively participated. They demonstrated their role in the fire fighting and rescue operations. Chief Inspectorate of Factories will witness the mock drill and express satisfaction on the emergency response procedures of the plant. Mock drills are being conducted to train the employees and contractors on emergency preparedness to meet any unlikely emergencies Safety and security of the personnel, assets and the environmental protection are on top of the agenda of all manufacturing businesses. Every business issue is discussed with safety in mind, and every solution complies with the safety policy "Safety of persons overrides all Production targets." The Emergency Response Plan (ERP) details the organizational responsibilities, initial actions, reporting requirements and resources available to effect a coordinated and timely onshore and offshore response to an emergency associated with the operation of the Industry.

### Objective of the mock drill

To increase the knowledge of workers in doing specific jobs.
To retain skills among the workers systematically so that they perform quickly.
To bring about change in the attitudes of the workers towards fellow

workers, supervisor and the organization.
To improve the overall performance of the organization.
To reduce the number of accidents by increasing the frequency of mock drill in to workers
To prepare workers for higher jobs by developing advanced skills in them.

General objective of training as Drummond (1989) quotes "it is orienting new employees to the organization and their job helping employees perform their current job well, helping employees qualify for the future job, keeping employees informed of changes within the organization providing opportunities for personal development. Blanchard and Thacker (1998) explain knowledge have 3 distinct types, Declarative knowledge.is a person store of factual information about a subject matter, Procedural knowledge is the persons understandings about how and when to apply the facts that has been learned, Strategic knowledge consists of the person awareness of what he knows and the internal rules for accessing relevant facts and procedure to be applied towards some goal. As Dinette (1976) states Skills is the capacity needed to perform a set of tasks that are developed as a result of training and experience a skill is a proficiency at doing something beyond just know ling what something is about Fleishman (1972) defines Abilities is a general capacities related to performing a set of tasks that are developed over time as a result of heredity and experience as Bently (1990) rightly says Role of training may be seen as "ensuring that the organization has the people with the correct mix of attributes ,through providing appropriate learning opportunities and motivating people to learn and thus enabling them to perform to the highest levels of quality and service".

**Review of literature**

Social learning involves a person examining the consequences of someone else's behavior and determining if that behavior is desirable to imitate. Especially humans, to learn and internalize new information and behaviors specific to what they're directly observing from their counterparts.Adaptive learning is concerned with how learning is achieved within a group setting. Adaptive learning as a strategy investigates what prior circumstances have contributed to a successful learning environment and then to increase those occurrences. At the same time, this means finding which strategies are unsuccessful and then removing them. Collaborative learning involves people within a group delegating tasks to each other and allocating time to accomplish those tasks. Furthermore, collaborative learning involves the collective behaviors, prior knowledge and combined effort of a group to achieve a main objective, which results in learning while seeking to achieve this objective.Problem-based learning is concerned with presenting a problem requiring a certain behavior bringing about a solution. Practice While the need for practice for learning or retaining new skills has been known for some time, science begins to drill down to the heart practice itself. Edwin R. Guthrie's (1952) study breaks skills into acts. Acts are defined as complicated behavior patterns usually involving some goal accomplishment. Acts are made up many individual movements.Hull (1943) discovered that when practice periods are spaced apart (distributed practice), performance is superior to what it is when practice periods are close together (massed practice). Also, during practice periods, the learners' performance will gradually improve until some asymptotic (maximal) level is reached. Adams (1977) theorized that if we practice long enough we develop a mental image. Not having balanced practice periods prevents learners from becoming fully comfortable with the feel and uses the skill they are attempting to acquire.

**Action Learning**

According to McLaughlin and Thorpe (1993) Action training is an approach to training that is based on individuals working on real problems that have the capacity to be solved by action. It therefore involves individuals identifying a problem, taking ownership of it, and identifying the steps necessary to resolve it. Mayo (2007), the underpinning principles of action training is central to the concept of quality circles within the workplace. Clarke (2004) has pointed out that debates concerning the nature of training within the workplace have been accompanied by discussions relating to the nature of workplace knowledge and expertise. Ajzen and Fishbein (1980) developed a versatile behavioral theory and model in 1980 called the Theory of Reasoned Action. This theory details the factors and inputs that result in any particular behavior. In simplified terms;

Attitude » Intention » Behavior

In this theory, a person's attitude toward a behavior consists of a belief that that particular behavior leads to a certain outcome and 2) an evaluation of the outcome of that behavior. If the outcome seems beneficial to the individual, he or she may then intend to or actually participate in a particular behavior. Also included in one's attitude toward a behavior is their concept of the subjective norm.

**Reflective learning**

Your performance as a student and your subject understanding will improve if each time you attend a lecture or undertake an assignment; you develop the habit of reflecting on your learning. This will have the benefits of identifying, the development of knowledge or skills. Gaps in your knowledge or skill set that need filling. Information about what is blocking your learning.

**Collaborative learning**

There is much to be gained from a collaborative approach to learning. Benefits such as: Sharing ideas, Sharing knowledge and experience sharing feedback Help to clarify your understanding of a subject help you rehearse presentations. Barrow and Tamblyn (1980) argue that professional practice required skills in problem solving. The design of PBL aims to enhance learners' problem solving skills. Problem-solving skills include both subject knowledge and general analysis/synthesis skills. A good problem solver has to understand the concepts, rules and principles related to the problems, and the hypothetical-deductive inference skills to generate hypotheses and formulate solutions.

**Systematic training**

It is an orderly; logical approach to determining what people must know and do at a articular job or in a specific profession. The systematic approach to training ensures that people are prepared for their work by having the necessary knowledge, skills, and attitudes to do their job.

Technical term definitions related to this research paper

A "major emergency" can be defined as an accident/ incident that have potential to cause serious injuries or loss of life. It may cause extensive damage of property, serious disruption both in production and working on factory and may adversely affect the environment.

- "Disaster" means an occurrence of such magnitude as to create a situation in which the normal patterns of life within an industrial complex are suddenly disrupted and in certain cases affecting the neighborhood seriously with the result that the people are plunged into helplessness and suffering and may need food, shelter, clothing, medical attention protection and other life sustaining requirements.
- "Emergency" means a situation or scenario which has the potential to cause serious danger to persons, environment or damage to property and which tends to cause disruption inside and / or outside the premises and may require the help of outside resources.
- "On Site Emergency" means an emergency that takes place in an installation and the effects are confined to the Installation premise's involving only the people working in the plants and to deal with such eventualities is the responsibility of the Occupier and is mandatory. It may also require help of outside resources.
- "Off Site emergency" means an emergency that takes place in an installation and the effects of emergency extends beyond the premises or the emergency created due to an accident, catastrophic incidents, natural calamities, etc. It longer remains the concern of the installation management alone but also becomes a concern for the general public living outside and to deal with such eventualities will be the responsibilities of Government administration.
- "Disaster management plan" means a well coordinated, comprehensive response Plan to contain loss of life, property, environment and provide a speedy and Effective recovery by making the most effective use of available resources in case of a disaster;

- "Each major hazardous factory should prepare an emergency plan incorporating details of action to be taken in case of any major accident/ disaster occurring inside the factory. The plan should cover all types of major accident/ occurrences and identify the risk involved in the plant. Mock drills on the plan should be carried out periodically to make the plan foolproof and persons are made fully prepared to fight against any incident in the plant. The plan will vary according to the type of industry and emergency".

**Research methodology**

With rapid industrialization and the birth of large-scale plants using complex technologies, it has become vital for industries to develop their own "Disaster Management Plans" to enable them to meet any undesired eventuality. Indeed some of the disasters in the recent past have brought out glaring inadequacies in the management systems to respond to a disaster situation to effectively control and minimize the loss of lives and property. This study will outline emergency scenarios up to the point of a full-scale evacuation of the vessel. The make-up of teams and the division of responsibilities included are given for guidance only, as decisions and responsibilities will ultimately be dictated by the nature of the emergency and the discretion of the Emergency Group Leader. This Emergency Response Plan provides guidance for all personnel reacting to an emergency situation occurring within the area of responsibility of the Offshore Installation Manager (OIM) of the FPSO. All personnel permanently assigned to the facility shall know and be proficient in carrying out their duties as defined .All visitors and temporary workers shall know; Alarm signals, Where to go when the alarm sounds, and what to do when the alarm sounds. The OIM is responsible for ensuring that a mechanism for instructing visitors and new personnel in emergency procedures is in place and operating efficiently.

Through this study the researcher will identify mock drill training program is more effective to train the way that will be most effective and most satisfying to the organization. The researcher wants this information to be useful for the Training Department to use to convince Senior Management what is best for the company as well as for the trainees. Training is a difficult area to understand for Senior Management. It is also something that can be hard to match with numbers for Return on Investment. This study should help bring the company a step closer to the truth in determining what is the most effective and satisfying form of training. This study is crucial to the future of the Training Team.
To carry out mock exercises and the rehearsal of the off site plan to ensure its efficiency, test and response, interaction and coordination of operators various service organizations evaluate the effectiveness and adequacy of the equipments and to gain experience and confidence to implement the plan. The finalized disaster plan shall be given to all concerned for implementation and rehearsal for preparedness.

**Drills in organizations**

In hydrocarbon industries like oil and gas Onshore , Offshore platform, Floating, Production, Storage and Offloading (FPSO) a tanker ship converted to production and storage , Mobile Offshore Production Unit (MOPU ) a rig converted to production facilities , Crude Oil Refineries, and Petrochemical plants there are various types of the drill will carry out. For analysis we have taken Floating, Production, Storage and Offloading FPSO. In this we have different scenarios of drill Abandon Ship ,Accommodation Fire ,Galley Fire, Process Fire, Helicopter crash in Installation ,Helicopter ditch into Sea, Engine Room Fire, Pump Room Fire, Fire in Electrical Control panel, Paint Store Fires, Flammable Vapors - Gas Release , Gas Fire, Cargo Tank Rupture During Offload, Fire / Explosion on Export Tanker, Fire in Enclose Space, Fire on Upper deck Man Overboard, Oil Pollution to Environment, Recue From Confine Space Off-Loading station fire - Metering Skid, Collision /Hull Damage, Flood Process Equipment Room, Fire in Boiler Generator, Fire In Flare Tower, Fire In Production Riser, Extreme Weather Condition, Helicopter Evacuation, Security Threat / Piracy, Emergency/ Security Drill ,Injury / Illness with need for Ext Asst.

The entire above scenario has consolidated into 5 categories for our analysis

- Fire drill (all types and areas) –major tasks during this emergency is Mustering, Wearing breathing apparatus, Fire suit, Electrical isolation, Starting of fire and foam pump
- Security drill (lockdown, man overboard) —Mustering closing all doors in FPSO, lowering a rescue boat, and picking the causality , first aid
- Abandon drill (evacuation, medical evacuation ) --Mustering , moving to alternate muster point, Wearing Life Jacket , Lowering the life boat
- Special drill (helicopter crash, bomb threat, ship collision ) -- Mustering, Wearing breathing apparatus, Fire suit, Electrical isolation, Starting of fire and foam pump first aid team to be ready.
- Spill /Leak drill (oil, gas, chemical) -- Mustering, Wearing breathing apparatus, Fire suit, Electrical isolation, Starting of fire and foam pump, arranging spill control materials

The Safety Officer is responsible for ensuring that all crew, persons joining the Vessel for the first time, and supernumeraries are given immediate information, personal protective equipment, and where appropriate, induction training in:

- Alarm signal and immediate responses,
- Evacuation of accommodation and work spaces,
- Muster points,

Alarm – An audible signal broadcast throughout the facility to inform all personnel of emergency situations. The FPSO broadcasts the following alarms:

- General Alarm,
- Fire & Gas Alarm,
- Abandon Alarm. (PAPA)
- Alarm Instruction Card – along with T-Cards a detailed instruction specific to personnel position, distributed to each employee upon his initial arrival on board the FPSO.
- ERG – Emergency Response Group (onshore)
- ERP – Emergency Response Plan
- ERT – Emergency Response Team (offshore

**FPSO Emergency Procedure Organization and Team allocation**

CCR Central Control Room : also called emergency control room where an entire emergency control team who are the decision makers like , all department superintendents , CAR, OIM, and safety Supervisor who will be On Scene Commander (OSC) will assemble when alarm sounds

Emergency Response Team 1: Production Supervisor, - I E& C Foreman, Welder/Fitter, - Production operator - Lab. Technician whose primary job is to wear Breathing apparatus, and fire suit, to fight with fire

Emergency Response Team 2: Mechanic Foreman, Electrician, Mechanic, Instrument Technician, Engine Room Operator this team's job is stand by for ERT1

First Aid Team: Medic and 4 crew members generally catering people trained in basic first aid whose task is close doors, and assist medic in event of causality.

Rescue Boat Team: Deck Supervisor, Mechanic, and 2 Seaman whose main task is to rescue people from sea in case of man overboard

Portside Lifeboat Team : Cargo Supervisor , Mechanic, 2 Seaman their task is lower the lifeboat in case of evacuation these people are trained for operating life boats as per regulation

Starboard Lifeboat Team: Deck Supervisor , Mechanic, 2 seaman; their task is to lower the lifeboat in case of evacuation these people are trained for operating life boats as per regulation Data collection is based on the company reports and personal interview of the team members as well as management of the FPSO

**Table-1: Number of Mock Drills in a month and total No of drills for the respective years**

| Year | No of Mock Drills in a month | Total No Drills for the year |
|---|---|---|
| 2008 May | 1,3,2,5,4,4,5,3 | 27 from May |
| 2009 | 3,2,4,3,5,5,4,4,4,4,4,3 | 45 |
| 2010 | 5,4,4,4,4,4,4,4,4,3,4,4 | 48 |
| 2011 | 6,4,5,4,4,4,4,6,4,4,5,3 | 53 |
| 2012 Oct | 4,4,3,4,3,4,3,3,3,2, | 33 up to October |

**Table -2: Time to Mustering and Time to perform the required task during a drill**

| Year | Fire Drill | | Security Drill | | Abandon Drill | |
|---|---|---|---|---|---|---|
| | Time to Muster | Time to Perform Tasks | Time to Muster | Time to Perform Tasks | Time to Muster | Time to Perform Tasks |
| 2008-May | 5,2,4,2,2,3,3,3 | 2,2,2,3,2,3,3, | 12,5,5,*8,3,3,4,4,2,2,4, | 2,2,3,2,2,2,2,3,3,3,2,3, | 6,2,5,6, | 5,6,7,5, |
| 2010 | 3,4,*10,4,4,4,*8 ,5,*9,*8,7,4,3,5 ,4,*8, | 3,3,3,3, 4,3,4,4,3,3,4,4,3,3,3,3, | 4,6,6,4,5, *9,6,#8,4, | 3,3,3,4,4,3,4,4,4, | 4,^6,^6,4,5,*9,6, *8,4, | 6,6,7,5,6,5,6,6,7 |
| 2012-Oct | 3,*7,4, *6*10 ,4 | 3,4,3,3,4,4, | 4,*12,7,4,6,*9,5,5,6,5,4,4, 3,8,5,5,5,5, | 4,4,4,4,3,4,3,3,3,4,4,4,5,4 ,4,4,4,3, | 7,*6,5,*6,*7,4 | 6,7,6,7,5,5 |

All figures other than years indicated are in minutes

**Table 2 A: Time to Mustering and Time to perform the required task during a drill**

| Year | Special Drill | | Spill/Leak Drill | |
|---|---|---|---|---|
| | Time to Muster | Time to Perform Tasks | Time to Muster | Time to Perform Tasks |
| 2008-May | 10,2, | 5,4 | 4,3 | 6,6 |
| 2010 | 4,5,4,4,4 | 5,5,4,6,5 | 4,4,4,4,*5 | 6,6,5,5, *90 |
| 2012-Oct | 4 | 5 | ^9,^7,*4, | 5,6,*90 |

All figures other than years indicated are in minutes

**Analysis and discussion**

This FPSO started producing oil from April-May 2008 and producing until now Total manpower otherwise called Personnel On Board (POB) is around 60 at all times For this type of analysis to find out mock drill will retain KSA researcher taken mainly the two important variable that is Mustering, and Performing the required task during particular type emergency, each drill events will be recorded and analyzed in house for lessons learnt and how to rectify/minimize the drawbacks.

In table 1 and 2-2A if we compare reduction/maintaining on Minutes during Mustering and tasks performed is very clear that due to more Number of Mock Drills only this retention was possible

**Inferences for Table2**

**Fire drill data**

Mustering: Observing the timing indicate that the average is 3 minutes during 2008 and to 1st drill is 5 minutes then it reduced , during 2010 over 4.27 minutes this increase because mustering was good but head count was having issues due to typing error of the list , and misplacing the T-card by the contractor so if we take 60 POB only 1 or 2 having this problem does not matter much, for 2012 it is 3.66minutes (If we convert to nearest value then it 3 ,4 ,4 minutes Average 4 minutes for mustering )

*asterix mark on higher values is due to the mustering at alternate muster point which is little more distance this is normal practice if we have a fire in the accommodation area

Performance of task : average 2.5 minutes during 2008 ,3.33 minutes during 2010 reason observed is communication problem which can be rectified but these skills and knowledge does not change it is maintained only if we see the , 3.5 minutes during 2012 (convert to nearest value 3,3,4 minutes average 3 minutes for performing)

**Security drill data**

Mustering "during the 2008 time average is 3.55. The 1st higher value is because of audio problem , so some people reported to CCR instead of muster point , later speaker problem solved so this value not taken for analysis, during 2010 it has gone up to 5 min and 2012 it is same 5 minutes ( convert to nearest 4,5,5 average is 5)

*asterix mark and # hash mark on higher values is due to delay mustering by the night shift crew who were sleeping

Performance of task: average 2.4 during 2008 , 3.5 during 2010 reason observed is doors became tight to close which is not a major issue but their skills and knowledge does not change it is maintained only if we see the , 3.5 during 2012 ( Average 3 minutes )

**Abandon drill data**

Mustering: average time during 2008 is 4.7 minutes, during 2010 is 5 min and during 2012- 5.3 min (average is 5 min) to muster this is on the higher side because many drill POB has to report 1st at regular muster point than when abandon ship decision taken they have to proceed to respective life boat area where 1 more head count will be done with the help of T card available at alternate muster point .

^ denotes newcomers took a little more time to muster during the initial period

Performance of task: 5.75 during 2008,6 during 2010 and 2012 ( average 6 minutes) increase is because the task is different from above mentioned drills apart from mustering , remuster at dropping area and lowering the boat are all manual jobs

**In table 2 A**

**Special drill data**

Mustering: 2008 they carried out 2 drills helicopter crash and bomb threat it looks 10 min was too much for mustering later found out that 2 persons are in the forecastle area where the alarm is not audible as the door was closed so it take 10 minutes out of 60 POB only 2 lately reported for bomb threat it is 2 min only individual psychology made the personal to muster fast due to bomb scare. During 2010 it is only average 4.2 minutes and 2012 is 4 so average 4 min for mustering.

Performance of task: 2008 it is average 4.5 min, average 2010 is 4.5 and 2012 is 5 (average 5 min)

**Spill/Leak drill data:**

Mustering: during 2008 average 3.5 min 2010 it is 4.2 and 2012 it is 4 (average 4 min) this time also proves attitude is good.

*asterix mark on higher values is a major drill oil spill where many officials on board to witness the drill took 1 min more than normal

Performance of task: *asterix mark on higher values is a major drill oil spill so complete government formalities were followed , deploying standby vessels , minimize the spreading of leak , chemical wash etc. so the time delay in performing the task is around 90 minutes. Otherwise during 2008 it is 6 min, during 2010 it is 5.5 and for 2012 is 5.5 (average is 6 min)

**Summary on Analysis**

From the table 1 it is clearly shown that number of mock drills are conducted all these years as companies start from 2008 to till date this is the reason always mustering time and tasks to carry out are always at lower side. From table 2 and 2A it is observed that mustering time is little more during some exercise this because assembling at alternate muster point which is a little far away from the usual mustering point. Mustering Timing reflects the attitude: The timings which is not at all increase during the sampling period itself clearly tells how the attitude of the employees during the drill Timing to perform the required task reflects their Knowledge, Skills , ability to perform jobs: timing not varied much at all during any drill shows that maximum number of mock drills per year proved that retaining the Knowledge , Skills , Ability of the performers. The following observations also noticed from the records made during the drill one of the drill exercises was not planned as usual; the sudden announcement was a way of assessing ERT team quick response to emergency. And the result is Alertness is required from the team and dressing fast with a fire man suit is also important. In another scenario was based on a major release of oil which resulted in a number of casualties of some crew members. The objective was practice and proves the co-ordination and communication links between shore base, government & external agencies. Though there was no real movement of personnel and equipment but some activation should be realistic. From the report like an emergency generator started, bilge pump operates to pump water out from the engine room. This is not realistic as the emergency generator is to provide emergency lighting only. Vessel collision and flooding will definitely require preparation for

abandoning FPSO, this was not highlighted in the exercise instruction whilst ERT is battling to secure the hole and rescue the trapped casualty. The exercise was a major oil spill, but there was no communication on effort to activate Tire 2 & 3 response equipment. Another drill rescue from closed vessel the objective of the drill was to stimulate emergency rescue from enclose space and medieval process. The exercise went well, the following was observed inadequate communication due to interference from another party, and the communication should only be channeled through on scene commander. Inadequate handling of casualty by the stretcher party. It was reported that is not audible at Port & Stbd accommodation deck due to lack of speaker. It was observed that no simulation of medic (Onboard) accompanying the casualty to shore base as he the one to give information to the condition of the casualty doctor. Another mock exercise was meant to keep ERT team alert, test agility and quick response of crew in case of emergency. Since the new ERT leader this exercise has taken a little more time to muster. In accommodation fire drill where mustering in alternate muster point the following points noted Personnel working in noisy area that did not hear alarm should be contacted on the Radio by their colleagues. It was observed that no orderliness at the alternate muster, crew were advised to maintain orderliness while at the muster station. During the Helpdesk crash drill a simulation exercise. ERT 2 team leader complained of unavailability of fireman suit for those with big sizes and wet boots. CAR inquired from HLO if there was prior information from pilot of any possible crash on deck. During another drill of Man Over Board (MOB) Rescue operation was fast. Picking up MOB casualty from the water using work boats on Davit was inadequate. Work boat davit is not certified for personnel transfer. It was learnt by Marine crew and OSC that Casualty in such case should be picked up by Port side 2.5 ton crane with a basket stretcher. The Life Jackets on the Port side and Starboard side Life Boats were not enough for the personnel's on-board, the crew complained when inquired HSE told that the Life Jackets are meant to be 28 per Life Boat according to the ABS PANAMA regulations; however we keep more than enough considering the amount of personnel on-board. The spares we normally keep in the boxes for such cases to accommodate more personnel's were removed from the boxes because the batteries in them were dead and no batteries on board for replacement. In another drill personnel assembled without life jacket and HSE advised always come down with the Life Jacket in their rooms whenever the alarm comes on. In some drills It is observed that chalet attitude and inadvertent behavior amongst personnel in mustering station. An interview reveals that experience people are expecting advanced training in respective tasks.

**Conclusion and Suggestion**

Every organization has in place policies, guidelines for action in case of any unforeseen incident strikes. Productivity loss resulting from such a drill exercise is minimized. The facts that everyone is well informed about the drill in advance and everyone casually makes it to the ground after the siren is sounded add to the futility of such exercises. The ideal drill is the one in which nobody is informed about the drill in advance and actually is conducted during peak business hours. However, the main point is why do we tend to neglect the need to prepare ourselves against disasters? There can be many plausible explanations. I will focus on our thinking and perceptions. Such incidents occur once in a blue moon. Say out of 1000 establishments with identified vulnerabilities of different severity, less than 10 actually meet such a fate over a period of say 5 years. The probability of any 1 establishment actually suffering in a single year is thus less than 0.02%. Adding the plausible improbability of any one particular individual being at the wrong place at the wrong time further subtracts the probability of that single individual actually being a victim in a fire or related disasters. All have studied that presence of mind can go a long way in minimizing damage, be better safe than sorry, the arts in our school books. Time to implement it in daily lives. Disaster management course has been made compulsory in some Universities. The need has come to have a comprehensive course providing sufficient practical training to all. Organizations must be communicated to have at least 5-10% of staff fully trained in disaster management skills and every employee having received at least theoretical disaster management training. Believe me, achieving these targets are not at all a Herculean task. There is definitely a limit to which we can defend ourselves. But by being prepared and applying a little presence of mind can go a long way in defeating the purpose of the enemy. The organization should continue the mock exercises in the same way the study proves clearly Knowledge, Skills, Ability, Attitude are well retaining during the mock drill as a training method .Several members of ERT member have not received any formal training in Advance fire fighting. Also none of ERT team leader has attended ERT team leader training on management of emergencies. For effective management of emergency all ERT team leaders & Safety Advisor must attend team leaders training/management of emergencies. There should be communicated on effort to activate Tire 2 & 3 response equipment. For any major drill carries out to find exactly how it works When medic has to accompany the injured person to shore base In such situation the safety advisor take over the medic role till he returns back to the vessel. In that regards safety advisor should be scheduled for advance first aid training course. If the ERT leader is new mentoring or guided training to be given for few drills apart from classroom training. Safety should not remain in Central control room but proceed immediately to kit for action with ERT team and wait for OIM's instruction to move incident scene. Work boat davit is should be certified for personnel transfer by competent authority the life jackets should be inspected regularly and the ones without light batteries to be fixed. Contractors should be given proper induction, and answer questions for clearer better understanding. In a drill the search team should always be those working in that area so as to spot any unusual object or thing.Oil Spill Management training should be conducted, most of the personnel's are not trained Personnel in the field should begin to use the forecastle as to get used to the system will provide advanced training in respective tasks for experienced people.

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