What do you need to know?  
The Major Accident Hazard Management Process

**The Installation Safety Case** - Identifies and assesses hazards, defines how risks are managed, and documents and demonstrates the basis of safety

**Major accidents are:**
- death or serious personal injury due to fire, explosion or dangerous substance release
- major damage to structure or plant, or loss of stability of the installation including well ‘blowout’, loss of containment or well control
- helicopter / ship collision with the installation
- failure of diving operations’ life support systems, detachment of a diving bell or trapping of a diver
- any other event involving death or serious personal injury to 5 or more people

Studies are carried out to fully understand what can go wrong and how we can design and operate to prevent and mitigate the effects of MAHs

Safety assessments establish potential extent of hazards and assess ways of managing the risk. These include:
- detailed risk assessment
- fire and explosion risk analysis
- dropped object assessment
- ship collision
- evacuation escape and rescue analysis

Operators must demonstrate to the Health and Safety Executive (HSE) that their installation meets acceptable levels of safety. To do this, each installation must submit a ‘safety case’ to the HSE which must then be accepted by the HSE. The safety case describes:
- the installation
- major accident hazards and risks
- how these risks are managed

Because each installation is different and technologies advance, each installation has its own safety case which is regularly updated.

Safety critical elements are the essential plant and equipment which perform functions to prevent or limit the effects of a MAH. The failure of SCEs could cause or contribute to a major accident.

The role of SCEs is to:
- prevent
- detect
- control
- mitigate
- rescue
- recover

Examples of SCEs are:
- hydrocarbon containment
- ignition prevention
- fire detection
- fire fighting
- temporary refuge
- lifeboats
- installation structure

Each SCE must attain a performance standard (PS) which outlines minimum levels of:
- functional performance (what the SCE must do)
- availability of SCE
- reliable operation
- how the SCE survives in the event of a fire or explosion

Assurance is the checking of SCEs by those workers on the installation assigned to maintaining or testing those SCEs. This checking, known as preventative maintenance routines (PMR) is to assure us that the safety systems are functional. These PMRs include checks such as:
- closure and leak off testing of emergency shutdown valves
- checks on gas heads
- temporary refuge integrity
- deluge testing
- inspection of passive fire protection (PFP)
- inspection of structures

Verification is a back-up to the assurance scheme. It requires an independent competent person (ICP) [also known as the independent verification body (IVB)] to check that the SCEs are present and functional. The ICP checks that the SCEs are functioning according to the PS requirements. If the PS has not been met, remedial actions recommended (RAR) are made to the duty holder. The duty holder must take action to repair / replace the SCE where necessary.

Verification by ICP may involve:
- witness testing
- inspection
- auditing and reviewing records
- interviewing offshore personnel
Introduction

This leaflet is aimed at all offshore workers to help them understand what major accidents hazards (MAH) are, and recognise what activities are done on a daily basis by yourselves and colleagues to help prevent these hazards becoming actual accidents onboard your installation.

It is recognised that the offshore oil industry is a hazardous one, and this has been shown by disasters in the past. However, after reading this leaflet, you should understand that lessons have been learned from such incidents, and that certain systems are in place to help prevent them from happening again.

The prime trigger for the introduction of major accident hazard management controls was the Piper Alpha accident in July 1988. This may seem historical and irrelevant in today's industry, because it happened during a different generation of offshore workers, but its legacy lives on. Piper Alpha is as relevant today as it was in 1988 when 167 men lost their lives. Lord Cullen led the inquiry into the disaster and his report recommended that operators must put in place certain controls to stop such an event from ever happening again. Two of the recommendations are 'major accident hazard management', and the introduction of the 'safety case' regime and these are central features of this leaflet.

Answers to questions

1. Do you know what a safety case is, and what is contained within it?
2. Do you know where to get a copy of the safety case at your place of work?
3. Do you know what a MAH is and could you give an example?

This leaflet should give you all the information you need to answer the following questions:

1. Do you know what a safety case is, and what is contained within it?
2. Do you know where to get a copy of the safety case at your place of work?
3. Do you know what a MAH is and could you give an example?
4. Can you name three SCEs?
5. Why do you carry out PMRs (preventative maintenance routines) offshore?
6. How do we ensure all safety critical elements offshore are ready for use if they are required?
7. Do you know what the abbreviations ICP and RAR stand for, and what they mean with regards to keeping you safe whilst offshore?

This document is one of a series of Assurance & Verification publications by Step Change in Safety. Others include:

- senior management summary flier
- guidance document providing basic outline of Assurance and Verification requirements
- practitioner’s guide providing detailed advice and common practice on Assurance and Verification

These documents can be found at: www.stepchangeinsafety.net