

# Offshore Oil and Gas Safety- Part 1



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# OSHAcademy Course 908 Study Guide

## Offshore Oil and Gas Safety-Part 1

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Contact OSHAcademy to arrange for use as a training document.

This study guide is designed to be reviewed off-line as a tool for preparation to successfully complete OSHAcademy Course 908.

Read each module, answer the quiz questions, and submit the quiz questions online through the course webpage. You can print the post-quiz response screen which will contain the correct answers to the questions.

The final exam will consist of questions developed from the course content and module quizzes.

We hope you enjoy the course and if you have any questions, feel free to email or call:

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## Course Introduction

Offshore oil and gas operations include all activities involved in the extraction of crude oil and natural gas from reservoirs found beneath the seafloor.

The oil and gas extraction industry includes three types of companies, defined according to the North American Industry Classification System (NAICS):

- ) oil and gas operators who control and manage leased areas
- ) drilling contractors who drill the wells
- ) well-servicing companies who provide all other types of support operations that prepare a well for production and completion

The 11 lives lost in the 2010 Deepwater Horizon explosion provide a reminder of the hazards involved in offshore drilling. To identify risk factors to offshore oil and gas extraction workers, CDC analyzed data from the Bureau of Labor Statistics (BLS) Census of Fatal Occupational Injuries (CFOI), a comprehensive database of fatal work injuries, for the period 2003–2010.

The report found that from 2003-2010, 128 fatalities in activities related to offshore oil and gas operations occurred as summarized below:

- ) transportation events were the leading cause of fatalities (65 [51%])
- ) contact with objects or equipment (21 [16%])
- ) fires and explosions (17 [13%])
- ) exposure to harmful substances/environments (16 [13%])

All but one fatality occurred in Gulf of Mexico operations.

This course was developed as a source of information and practical training tool for offshore rig safety personnel, operator/contractor employees, supervisors, and managers who need to be familiar with offshore rig safety. The training will help you develop and maintain an effective Safety and Environmental Management System specifically for off-shore drilling rigs. The course covers basic safety and health topics common in offshore oil and gas. Additional guidance related to each of the topics is also included in the course.

Note: The use of the term “must” in source documents for this training has been replaced with the term “should” because the content of this training is guidance only and does not replace or serve as a substitute for mandatory regulatory requirements detailed in source documents.

## Module 1 – General Oil and Gas Safety Guidelines

### Compliance with Standards

For offshore oil and gas drilling and production, the Department of the Interior (DOI), the Bureau of Safety and Environment (BSEE), American Petroleum Institute (API) and other organizations have developed standards and guidelines to make sure offshore company sites operate:

- ) in compliance with all applicable laws and regulations
- ) conform to industry best practices and standards
- ) company policies and guiding principles

The company should design develop and deploy a BSEE Safety and Environmental Management System (SEMS II) Program. The program should address the 17 elements of an effective SEMS II Program and the standards detailed in the API's Recommended Practice for Development of a Safety and Environmental Management Program for Offshore Operations and Facilities (API RP 75).

Note: The SEMS II Rule became effective on June 4, 2013. Operators have until June 4, 2014 to comply with the provisions of the SEMS II Rule, except for the auditing requirements. All SEMS II audits should be in compliance with the SEMS II Rule by June 4, 2015.

In this module, we will be covering general safety best practices applicable to all oil and gas facilities. With that, let's get started.

### Safety Communications

Good communication is critical to safety on platforms. There should be several methods for workers to communicate while offshore. These options include:

- ) Voice communication public address (PA) system. The PA system should not be abused or used for anything other than company-specific information. Music or other non-company business should not be allowed.
- ) Alarm signals to signal emergency conditions, such as a fire. When using the PA:

- ) For any operation where line of sight by the equipment operator cannot be maintained with workers or material, a repeat-back system of communication should be used.

### **Management of Change (MOC)**

Management of Change (MOC) is a formal set of procedures that address process-related or mechanical-related modifications of a facility and the safe management of change.

MOC ensures that changes are recognized, documented, formally reviewed, and approved before being implemented to avoid potential safety, environmental and operational problems.

In accordance with BSEE requirements, companies should design, develop and deploy a Management of Change (MOC) program to effectively manage changes to the organization and its related systems, procedures, equipment, products, materials, substances, processes, and people.

The MOC should include a facility-level hazards analysis and a task-level Job Safety Analysis (JSA) that is developed and implemented for all the facilities and activities identified or discussed in the BSEE SEMS II.

### **Hazard Identification and Risk Analysis (HIRA)**

As part of the company's Management of Change (MOC) program, a Hazard Identification and Risk Analysis (HIRA) system should be fully designed, developed and deployed and encompass activities for identifying hazards and evaluating and controlling risk at offshore sites. The Job Safety analysis (JSA) is one activity within the HIRA process.

### **Quality Assurance and Mechanical Integrity**

It is important that an effective Mechanical Integrity program is designed, developed and deployed to ensure that offshore oil platform equipment functions as required during its life in accordance with BSEE SEMS II (30 CFR 250.1916).

Written procedures that provide instructions should be developed to ensure the mechanical integrity and safe operation of equipment through:

- ) inspection
- ) testing

- ) quality assurance

The mechanical integrity program should encompass all equipment and systems used to prevent or mitigate uncontrolled releases of:

- ) hydrocarbons
- ) toxic substances
- ) other materials that may be harmful to the environment or safety

### **Asset Integrity and Reliability**

Critical equipment used to process, store, or handle hydrocarbons or other hazardous chemicals and materials of construction at company facilities should be procured, inspected, tested, and maintained to:

- ) minimize the occurrence of hazards that will jeopardize workers safety, environmental quality, or profitability of company operations
- ) minimize uncontrolled releases of these substances

Preventative Maintenance (PM) Programs should be designed, developed and deployed to ensure the reliability of critical equipment is maintained.

### **Area Designations**

A company representative should determine area designations during the work permitting process and communicate these to those performing the work.

The representative should take in to account the potential hazards associated with each of these areas and the type of work being performed when issuing work permits.

Area designations can include:

- ) Free or Non-process areas: Areas where there are no flammable or toxic atmosphere potentials.

- J Classified or Process areas: Areas where the potential exists for flammable and/or toxic atmospheres.
- J Radiographic areas: Areas where there are radioactive hazards due to equipment or work activities.
- J Mustering areas: Areas or gathering points, when emergency evacuation is required.
- J Restricted areas: Areas that are off-limits to workers unless they are authorized to enter.
- J Danger or Caution areas: Areas where temporary hazards exist due to operations or maintenance activities.
- J Explosives areas: Areas where there are explosive hazards due to equipment or work activities.

### Permit-to-Work System

The Permit to Work (PTW) system should be developed to manage higher risk task and activities.

All the following should be included in the PTW system:

- J Duties and responsibilities for the PTW system should be developed.
- J Definitions should be developed to identify risk criteria for identifying which tasks and activities require a PTW.
- J Hazards and controls should be identified during the Job Safety Analysis (JSA) process and recorded on the PTW.
- J Training all personnel in the application of the PTW system.
- J Communicating the requirements and procedures of the PTW system through orientations and pre-task meetings.

## Drilling and Service Platform General Best Practices

When working on drilling and service platforms:

- J Training: All personnel should be adequately trained on general and specific HSE requirements.
- J Contractors: The contractor should provide well-maintained equipment that has been properly inspected, maintained, and is in safe operating condition.
- J Verification: Prior to first use, verification by a competent person that equipment complies with all requirements stipulated by regulations, the manufacturer, and industry standards should be obtained.
- J Inspections: The contractor should conduct inspections of platforms as required by governmental agencies and/or regulations and immediately repair or replace any item found to be deficient.
  - o Before a new service platform is used on company locations, a competent and authorized person and a company representative should conduct a formal safety inspection.
- J Communications: Contractors should provide the company with the latest BSEE and other regulatory agency inspection reports used to perform work for the company.
- J Housekeeping: Work areas, equipment, walkways, and buildings should be kept clean and orderly at all times.
- J Marine Debris: Strict observance of all environmental laws and restrictions pertinent to the local jurisdiction should be required. Throwing debris over the side of the platform should be strictly prohibited.

## Module 1 Quiz

Use this quiz to self-check your understanding of the module content. You can also go online and take this quiz within the module. The online quiz provides the correct answer once submitted.

- 1. Which of the following is a method for workers to communicate while offshore?**
  - a. Voice communications over a PA system
  - b. Routine alarm signals
  - c. A Morse-code communications system
  - d. Cell phone communications
  
- 2. Critical equipment used to process, store, or handle hazardous chemicals and materials should be procured, inspected, tested, and maintained to \_\_\_\_\_.** 
  - a. comply with OSHA regulations
  - b. prevent BSEE violations
  - c. minimize uncontrolled releases of harmful substances
  - d. ensure compliance with BOEM rules
  
- 3. All the following should be included in the facility's Permit to Work (PTW) system, except \_\_\_\_\_.** 
  - a. BSEE reporting procedures
  - b. definitions
  - c. hazards and controls
  - d. communicating requirements and procedures
  
- 4. When working on drilling and service platforms, \_\_\_\_\_ personnel should be adequately trained on general and specific HSE requirements.** 
  - a. affected
  - b. all
  - c. exposed
  - d. designated



- 5. Before a new service platform is used on company locations, a competent and authorized person and a company representative should \_\_\_\_.**
- a. conduct a formal safety inspection
  - b. report findings to BSEE
  - c. photographically document construction
  - d. run a test operation

## Module 2 – General Oil and Gas Safety Guidelines (Continued)

### On-site Orientation

The list below contains guidelines for ensuring basic information requirements are achieved during preliminary on-site orientations:

- ) Upon arrival at the platform/MODU workers should undergo an offshore orientation. As a condition of boarding, workers should accept the authority of persons in charge and agree to comply with the company’s safety management system requirements. Non-compliance should result in removal from the facility or MODU.
- ) Workers should be aware of the person in charge to whom they report while on board.
- ) Pre-job safety meetings and emergency drills and exercises should be conducted as required by the SEMS II plan.
- ) The Station bill and alarms for the facility, including shoulder points and emergency egress should be reviewed.
- ) All new employees should know how to use personal protective equipment (PPE) and respiratory protective equipment (RPE) required for their work.
- ) Employees should know the location of the “Right to Know” station and the location of Safety Data Sheets (SDS).
- ) Workers should understand and signify that they will comply with policies related to the Drug-Free Workplace, use of prescription medications, designated smoking area and contraband items.
- ) All workers should receive information on safety, health, and environmental (HSE) responsibilities including incident reporting (spills, injuries, etc.).
- ) All workers should be instructed on their responsibilities while conducting Job Safety Analysis (JSA) procedures, Permit Authorizations, and Stop Work/Ultimate Authority responsibilities.
- ) Workers should be informed on the nature of simultaneous operations.

- ) Specific facility programs or procedures should be discussed as necessary.

### Drug-free Workplace Policy

All companies should be committed to protecting the safety, health and well-being of all employees. Companies should have a policy that states they recognize that alcohol and drug abuse pose a significant and unacceptable threat to safety goals and objectives. A strong, yet fair, Drug-free Workplace Program should be designed, developed, and deployed throughout all facilities.

- ) All employees should be prohibited from using, possessing, or being under the influence of alcohol or illegal drugs while conducting work or business on company property or premises.
- ) Testing workers for illicit drug or alcohol use may be accomplished for the following reasons:
  - o a random test should be conducted at any time chosen by company management
  - o a post-incident test following an injury, spill, or property damage incident
  - o for cause when reasonable suspicion exists
- ) Employees or contractors should be required to disclose any prescription medication at initial orientation and subsequent trips offshore.

### Fit for Duty – Sober and Focused

All company and contractor employees must be able to safely and acceptably perform assigned duties without any limitations due to the use or effects of alcohol, illicit drugs, fatigue, or medications.

Bottom-line, everyone must be sober and focused on the work they are performing.



## Hazard Reporting

Company and contractor employees are responsible for reporting any hazards they may observe on the platform to their immediate platform supervisor.

The person observing the hazard should take all actions within his or her ability to safely prevent the situation from developing further.

Follow the company near miss/incident reporting requirements.

## Incident Reporting

An incident or accident is an unplanned event that causes or has the potential to cause injury or illness, and damage to property, company assets, or the environment.

When workers are offshore, all injuries or illnesses should be reported and documented. No injury or illness is too minor to report. This includes both work related and non-work related injuries or illnesses.

Company employees should report all incidents to a supervisor as soon as practicable (within 1 hour). Written incident reports should be submitted within 4 hours and preliminary accident investigation reports within 24 hours.

Contractors should plan to submit completed investigation reports no later than 7 days from time of the incident.

For more information on this topic, see [OSHAcademy Course 702](#).

## Behavior-Based Safety Observation Programs

Many contractors use behavior-based safety model as a job observation system program that aims to promote and encourage positive safety behavior. This program usually requires that observers intervene with workers who carry out unsafe behaviors or practices, taking positive steps to correct them.

To increase the likelihood of success, companies should participate in behavior-based programs only:

- ) when the company's safety culture will support it
- ) it is appropriate and applicable to the worksite location (e.g. drilling)

## Job Planning

The key to good performance lies in the amount of planning that goes into the operation before the job starts.

Prior to the start of work, all workers should review the proposed work schedule and ensure that everything required to perform the job is in place and ready.

These could include:

- ) barrier tape or signs warning of the work being performed
- ) correct tools
- ) Job Safety Analysis (JSA)
- ) personal protective equipment
- ) fall protection
- ) permits to work (PTW)
- ) isolation permits
- ) trained workers to do the job
- ) work instructions

## Contraband Items

The possession of deadly weapons or explosives on company premises or while conducting operations should be strictly forbidden.

- ) Firearms, guns, ammunition or other similar items where the use, possession, transfer, storage, concealment, transportation or sale of which is not specifically authorized or allowed on an offshore facility should be strictly prohibited.

- J Illicit drugs, drug paraphernalia, incense, controlled substances or alcoholic beverages on company premises or while conducting company business should be strictly forbidden.
- J Only knives with retractable blades designed for commercial use are allowed to be used during work on an offshore platform. A personal 'jackknife' or hunting knife should be prohibited.
- J Explosives should be strictly prohibited on company leases, excluding those used for legitimate operational purposes, such as perforation.

Company or contractor employees who violate best practices or fail to cooperate with a search request should be refused access to company facilities.

## Module 2 Quiz

Use this quiz to self-check your understanding of the module content. You can also go online and take this quiz within the module. The online quiz provides the correct answer once submitted.

- 1. Company and contractor employees are responsible for reporting any hazards they may observe on the platform to \_\_\_\_\_.** 
  - a. their immediate platform supervisor
  - b. the BSEE representative
  - c. company safety manager
  - d. any safety staff member
  
- 2. As a condition of boarding an offshore platform, workers should \_\_\_\_\_.** 
  - a. pass a drug and alcohol test
  - b. verify their personal identity
  - c. agree to comply with the company's safety requirements
  - d. pass a comprehensive written safety test
  
- 3. The company's Fit for Duty policy should state that everyone must be \_\_\_\_\_.** 
  - a. aware of their surroundings at all times
  - b. sober and focused on the work being performed
  - c. properly motivated to do the work
  - d. ready to take on new responsibilities
  
- 4. Which of the following knives is allowed when doing work on an offshore platform?** 
  - a. Jackknife or hunting knife
  - b. Knife with retractable blade designed for commercial use
  - c. Commercial machete
  - d. Any knife with a blade six inches or less

- 5. Prior to the start of work, to make sure everything required to do a job, workers should ensure all the following is in place and ready, except \_\_\_\_\_.**
- a. correct tools
  - b. permits to work (PTW)
  - c. Job Safety Analysis (JSA)
  - d. union representative



## Module 3 - Personal Protective Equipment (PPE)

### How Workers Are Getting Hurt

Workers involved in oil and gas production are exposed to a significant risk of death or injury from being struck by various objects in the workplace. A significant portion of all work-related injuries and fatalities in the oil and gas industry involve workers being struck in the eyes, head, face, hand, and or feet by foreign objects.

Two major factors causing these injuries have been identified:

- ) Personal protective equipment was not being worn the vast majority of the time.
- ) When some type of protective equipment was worn, it did not fully protect the worker.

### Management's Obligation

Management has an obligation to provide personal protective equipment (PPE) to employees. The PPE provided should include equipment for the eyes, face, head, and extremities. Protective clothing and barriers should also be provided. The employer should make sure employees use and maintain PPE in a sanitary and reliable condition.

Defective or damaged personal protective equipment should not be used. It's important to inspect PPE regularly, and before each use to make sure it's capable of adequately protecting an employee from exposure to hazards. Remember, PPE that is defective...is not PPE.

### Hazard Assessment and Equipment Selection

A hazard assessment should be conducted prior to the use of PPE because it produces the information needed to select the appropriate PPE for any hazards present or likely to be present on an oil and gas facility.

It is a performance-oriented provision that simply requires management to use their awareness of workplace hazards to enable them to select the appropriate PPE for the work being performed.

### Head Protection

Protective hardhats for head protection against impact blows should be able to withstand penetration and absorb the shock of a blow. In some cases hardhats should also protect against

electric shock. Recognized standards for hardhats have been established by the American National Standards Institute (ANSI).

Head and facial hair should not interfere with normal work activities or respiratory protection equipment (RPE).

Workers with long hair that may create a hazard from being snagged should be required to keep it contained in an appropriate manner.

### Eye Protection

Eye protection should be routinely considered for use by many professions including: carpenters, electricians, machinists, mechanics, millwrights, plumbers and pipefitters, sheet metal workers and tinsmiths, assemblers, sanders, grinding machine operators, sawyers, welders, laborers, and chemical process operators and handlers.

Examples of potential eye or face injuries include:

- ) dust, dirt, and metal entering the eye from activities such as grinding, sanding, sawing, hammering, the use of power tools or even strong wind forces
- ) chemical splashes from corrosive substances, hot liquids, solvents or other hazardous solutions
- ) objects swinging into the eye or face, such as chains, tools or ropes
- ) radiant energy from welding, harmful rays from the use of lasers or other radiant light (as well as heat, glare, sparks, splash and flying particles)

### Hearing Protection

Noise-induced hearing loss is the term for hearing damaged by exposure to excessive noise. The damage to hearing caused by too much noise may not be apparent for years.

Workers can damage hearing if they are continually exposed to noise greater than 85 decibels more than eight hours. As noise levels rise above 85 decibels, the safe exposure time for unprotected ears falls dramatically. For example, 110-decibel noise can impair hearing after just 15 minutes of exposure.

A qualified person should evaluate the hazards due to noise in the workplace using one of the following three methods:

- ) Area monitoring: A sound-level meter is used to identify areas in the workplace that may put workers' hearing at risk.
- ) Personal monitoring: A sound-level meter and a dosimeter is used to estimate an individual's daily noise exposure.
- ) Engineering survey: Noise levels produced by machinery in different operating modes is monitored to find ways to eliminate or control the noise.

Preformed or molded ear plugs should be individually fitted by a professional. Waxed cotton, foam or fiberglass wool earplugs are self-forming. Disposable earplugs should be used once and thrown away; non-disposable ones should be cleaned after each use for proper maintenance.

### **Respiratory Protection**

Respirators are devices that protect employees from inhaling harmful substances, including chemical, biological, and radiological agents. These substances can be in the form of airborne vapors, gases, dust, fogs, fumes, mists, smokes, or sprays.

Some respirators also ensure that employees do not breathe air that contains dangerously low levels of oxygen or that is otherwise immediately dangerous to life or health (IDLH), (e.g., life-threatening exposures during interior structural firefighting.)

Respirators may be used to provide protection during routine operations where engineering controls and work practices are not able to provide sufficient protection from these hazards, or in emergencies.

When using respiratory protective equipment:

- ) Wear the appropriate respiratory protective equipment if workers are or may be exposed to airborne contaminants or a mixture of airborne contaminants in concentrations exceeding the permissible exposure limits, such as:
  - o atmospheres with an oxygen concentration of less than 19.5 percent by volume
  - o other airborne contaminants, such as dusts, hazardous and noxious fumes

- J Respiratory protective equipment should be National Institute for Occupational Safety and Health (NIOSH) approved and selected for workers in accordance with ANSI Z88.2-1992 Selection, Use, and Care of Respirators
- J Make respiratory equipment readily accessible, stored, and maintained in a clean and sanitary condition, inspected before and after each use to ensure it is in satisfactory working condition, and serviced and used in accordance with the manufacturer's recommendations.
- J Properly fit and fit test respiratory protective equipment used by workers on company locations in accordance to the ANSI Z88.2-1992 standard to ensure an effective facial seal. Workers should be prepared to provide proof of fit testing when requested.
- J Workers required to wear respiratory protective equipment should be clean-shaven as per the company's SEMS II plan.
- J Contractors should make sure that their Respiratory Protective Equipment practices are in compliance with applicable regulatory agency legislation.
- J Workers wearing respirators should be medically examined and cleared prior to first use.
- J To make sure the proper respiratory protective equipment is being used on the job, workers should review the related Safety Data Sheet (SDS).

### Hand Protection

Burns, cuts, electrical shock, amputation and absorption of chemicals are examples of hazards associated with arm and hand injuries. A wide assortment of gloves, hand pads, sleeves and wristlets for protection from these hazards should be made available to employees.

Hand protection should be selected to fit the specific task. Rubber is considered the best material for insulating gloves and sleeves and should conform to ANSI.

### Jewelry

Jewelry or other adornments that may cause an injury from snagging or hanging should not be worn when exposed to moving parts or electrical hazards.

*De-gloving of a finger caused by a ring:*

*The accident occurred when the individual was jumping off the side of an Army tow truck. He placed his hand on the railing of the bed and jumped off. The ring caught on the side of truck bed. Upon reaching the ground, the ring had removed all the skin from the finger, leaving the muscles, bone and fingernail exposed.*

*The individual was rushed to an emergency room where the finger was inserted into the wall of the stomach area. A pedicle graft was performed using the skin from the stomach area. After more than eight operations and over a 100 plus days in the hospital the finger is semi useable. The stomach skin on the ring finger is more sensitive than the other finger's skin. (Source: OR-OSHA)*

### **Foot Protection**

Foot protection is necessary for protection against falling or rolling objects, sharp objects, molten metal, hot surfaces and wet, slippery surfaces.

Workers exposed to these hazards should use:

- ) appropriate foot guards
- ) safety shoes, or
- ) boots and leggings

Safety shoes should be sturdy and have an impact- resistant toe. Shoes should meet ANSI standards.

### **Clothing – Torso Protection**

Many hazards can threaten the torso: heat, splashes from hot metals and liquids, impacts, cuts, acids, and radiation. A variety of protective clothing is available, including:

- ) vests
- ) jackets
- ) aprons

) coveralls

) full body suits

Fire retardant wool and specially treated cotton clothing items are comfortable, and they adapt well to a variety of workplace temperatures. Other types of protection include leather, rubberized fabrics, and disposable suits.

Make sure proper protective clothing is worn during hazardous work tasks. Never wear clothing that contains or is saturated with any flammable, hazardous or irritating substance(s). Remove, such clothing immediately, wash any affected areas on the skin, and replace with suitable clothing.

Loose or poorly fitted clothing should never be worn when working around moving parts, or tasks where clothing may become snagged.

### Module 3 Quiz

Use this quiz to self-check your understanding of the module content. You can also go online and take this quiz within the module. The online quiz provides the correct answer once submitted.

- 1. A/an \_\_\_\_\_ should be conducted prior to the first use of PPE on an oil and gas platform because it produces the information needed for the appropriate selection of PPE.**
  - a. hazard assessment
  - b. incident investigation
  - c. behavior-based observation
  - d. safety evaluation
  
- 2. Workers can damage hearing if they are continually exposed to noise greater than \_\_\_\_\_ decibels for more than eight hours.**
  - a. 70
  - b. 65
  - c. 85
  - d. 80
  
- 3. Gloves, hand pads, sleeves and wristlets can be used to protect against one or more of the following, except \_\_\_\_\_.**
  - a. electrical shock
  - b. burns
  - c. cuts
  - d. strains and sprains

- 4. Clothing that contains or is saturated with any flammable, hazardous or irritating substance(s) should be \_\_\_\_.**
- a. removed immediately
  - b. cleaned of work
  - c. aired out
  - d. tagged for cleaning
- 5. Jewelry or other adornments that may cause an injury from snagging or hanging should not be worn when exposed to \_\_\_\_.**
- a. open flames from welding
  - b. moving parts or electrical hazards
  - c. explosive or flammable substances
  - d. temperature extremes



## Module 4 - Fall Protection

### Body Harnesses

Body harnesses are designed to minimize stress forces on an employee's body in the event of a fall, while providing sufficient freedom of movement to allow work to be performed. Harnesses, and components must be used only for employee protection (as part of a personal fall arrest system) and not to hoist materials.

- ) A full body harness should be worn for:
  - fall protection from height above 6 feet vertical from a temporary work site, and/or above 4 feet vertical from a permanent work site
  - when completing hazardous confined space work
  - when working at elevation in a man basket as part of the job
  - work at any height above equipment and moving parts
- ) Contractors should be fully aware of and comply with requirements regarding the use of full body harnesses.
- ) When the use of one of these devices is required, the contractor should ensure that they are properly maintained and used.
- ) Ensure proper fall protection is worn for the task being conducted (i.e., chest d-ring for ascending and descending ladder safe systems and to aid in rescue).

### Scaffolding or Temporary Work Platforms

When working on scaffolding or platforms workers should conform to all the following best practices:

- ) Provide toe boards and guardrails on work platforms above 4 feet.
- ) Construct, maintain, and use scaffolds or platforms according to specific regulations and industry standards.

- ) Scaffolding should be:
  - erected by a trained and competent person
  - anchored to prevent accidental movement
  - equipped with guardrails and toe boards if the scaffold is erected over an area where others should be working or passing by
  
- ) Before using scaffolding, it should be inspected and tagged by a trained and competent person.
  
- ) Scaffolds should be identified with tags that are located at point of access. An example of color-coded tags follows:
  - Green tag - No restrictions: Safe for use. Trained and competent workers may use the scaffold without restriction.
  - Yellow tag – Caution: Scaffold has special requirements for safe use. No use until workers are properly trained and competent in safe use.
  - Red tag – Danger: Do not use as it has been deemed unsafe. The scaffold should be either repaired or disassembled.

### **Guardrails, Handrails, Platforms, and Barricades**

Employees should use the following guidelines for all guardrails, handrails, platforms, and barricades on board:

- ) Install these as required by Coast Guard Regulations.
  
- ) Provide and maintain signs, barriers, and/or flag persons necessary to protect workers from injury.
  
- ) As required by regulation, install only approved guardrails with safe, sturdy walking surfaces in work areas, walkways, platforms, or other elevated areas.
  
- ) Securely install temporary covering or proper guardrails on all deck openings.

## Stairways

Employees should use the following guidelines when using stairways on board:

- )] Light tools and equipment may be attached in a fit-for-purpose tool bag or dedicated lanyard attached to one's person, but not carried by hand.
- )] Keep stairways clear at all times.
- )] Report and repair damage to stairways immediately.
- )] Use at least 1 handrail at all times when ascending or descending stairways.
- )] If carrying items or baggage on stairways, one hand should be free to grasp the handrail.
- )] Stairways should be non-slip to prevent workers from slipping on stairways.

## Trailing Hand Technique

The "Trailing Hand Technique" is used to reduce the chance of injury if a slip and fall occurs while descending a stairway. Just grasp the handrail behind in a trailing motion while descending stairs.

Here's a [short video](#) to demonstrate this technique.

## Ladders

When working with fixed and portable ladders be sure to follow these guidelines:

- )] Thoroughly inspect ladders before use and remove any defective ladder from service immediately.
- )] Workers should not climb higher than the third rung from the top of extension ladders or the second step from the top on stepladders.
- )] Never reach beyond arm's length from the side rails.
- )] Never move the ladder with a person on it.

- ) Always face the ladder when climbing up or down.
- ) Never hand carry any load or item while using ladders.
- ) Never use boxes, chairs, sawhorses, or tables as replacements for ladders.
- ) Follow the three-point rule: Maintain three points of contact (2 hands-1 foot or 2 feet-1 hand), at all times when climbing or descending a ladder.
- ) Only one person should be on or using a ladder at a time.
- ) Only use ANSI approved ladders.
- ) Use only fiberglass ladders (Dielectric and non-metal) when working near or with electrical circuits.
- ) When in use, the ladder should extend three feet (two rungs) past any platform or landing, be secured from movement, and positioned so that it is no more than 1/4th of its height away from the wall or structure against which it stands.
- ) Secure the ladder if used for a height more than 10 feet.
- ) If using a ladder for an elevated work area that is more than 6 feet in height, also use required fall protection and be tied off to a suitable anchor point.
- ) When using extension ladders, overlap at least 3 rungs of the ladder extension.
- ) Fixed ladders greater than 20 feet in length should have caged platforms.

Click on the link to see a short video on [Ladder Safety](#).

### **Walking Working Surfaces**

Employee exposure to wet floors, spills, or clutter can lead to slips, trips, falls, and other possible injuries.

## Slips

Whenever any substance has been spilled or is standing, clean it up immediately before pursuing any other job.

- ) Report sources of spills/wet spots to ensure repairs are made.
- ) If the identity of the spilled substance is unknown, identify it and use proper cleanup and disposal techniques.
- ) Take short steps when walking on wet surfaces to lessen the chance of slipping.
- ) Keep hands free and out of pockets to ensure better balance.
- ) Wear slip-resistant shoes and keep them clean.
- ) Never run.

## Trips

- ) Use designated walkways or access routes whenever possible.
- ) Be aware that some tripping hazards will always exist. Stay focused and concentrate on the path ahead of you.

## Falls

- ) Use the three-point method when climbing up and down ladders.
- ) To avoid slips and falls, walking up and down stairs requires the use of at least 1 handrail.
- ) Properly barricade or cover floor holes.

Watch this short video on slips, trips and falls: [Slips, Trips and Falls - Walking and Working Surfaces](#)

## Personnel Transfer Basket

When using a worker transfer basket, be sure to use the following procedures:

- ) All workers should review training videos on workers transfers as part of their offshore assignment.
- ) The maximum load for a workers transfer basket is 8 persons.
- ) No workers should be transferred in adverse weather conditions.
- ) Limit bags to the usual personal belongings of crewmembers. Do not use workers baskets to transport cargo.
- ) All persons should wear a Type 1 PFD.
- ) Persons riding the basket are to stand on the outside ring, with arms locked through the ropes, facing inward.
- ) Equip the workers basket with a tag line.
- ) Swing the basket to the side, over the water, as soon as practical when picking the basket up from the deck of a vessel. Conversely, keep the basket over the water as long as is practical when lowering the basket to the deck of a vessel.
- ) Persons should not be transferred using cargo nets or any other make shift basket.
- ) Keep basket transfers in the line of sight of the crane operator, or if this is not possible, use an experienced signalman.

See what happens when a transfer goes wrong! [Operating an Offshore Crane - The Wrong Way](#)

## Working over Water

When working over water:

- ) Work over the water should be a Work Authorization Permitted activity.

- )] Consider rescue methods and procedures before authorizing workers to work over water.
- )] Workers should wear a full body harness with properly secured lanyards and/or retractable lifelines and a life preserver.
- )] Keep persons working over water under surveillance by either a fellow worker or a person specifically designated for that duty.
- )] Advise the standby boat of the operation. The standby boat should remain at an appropriate state of readiness to assist if the need should arise.

Here's an interesting video showing the construction of a platform including working over water. Enjoy the music! [Constructing an Offshore Platform](#)

## Module 4 Quiz

Use this quiz to self-check your understanding of the module content. You can also go online and take this quiz within the module. The online quiz provides the correct answer once submitted.

- 1. A full body harness should be worn for all the following situations, except \_\_\_\_.**
  - a. at any height above equipment or moving parts
  - b. working above 6 feet on temporary work site
  - c. when completing hazardous confined space work
  - d. height above 10 feet on a permanent work site
  
- 2. Guardrails, handrails, platforms, and barricades on board should be installed according to \_\_\_\_.**
  - a. OSH regulations
  - b. Coast Guard regulations
  - c. BEOM regulations
  - d. ANSI regulations
  
- 3. Employees should use the following guidelines when using stairways on board, except \_\_\_\_.**
  - a. reporting damage immediately
  - b. installing non-slip stairway
  - c. keeping stairs clear at all times
  - d. using both handrails when ascending or descending stairways
  
- 4. Employees should use the following guidelines when using fixed and portable ladders on board, except \_\_\_\_.**
  - a. extending the ladder at least two rungs above landing
  - b. securing portable ladders when used work at heights over 10 feet
  - c. using only wood ladders when working around electrical equipment
  - d. installing platforms for fixed ladders over 20 feet in length



- 5. While working over water, employees should do all the following, except \_\_\_\_.**
- a. limit the maximum number of workers over water to 12 persons
  - b. keep workers over water under surveillance
  - c. only conduct Work Authorization Permitted activities
  - d. consider rescue methods before authorizing work

## **Module 5 - Emergency Response and Notification**

### **SEMS Emergency Response Criteria**

In accordance with the BSEE Safety and Environment Management System II, an Emergency Action Plan (EAP) should be in place. It should assign authority and responsibility to the appropriate qualified person(s) at a facility for initiating effective emergency response and control, addressing emergency reporting and response requirements, and compliance with all applicable governmental regulations.

An on-board Emergency Control Center (ECC) should be designated for each facility. Each ECC should have ready access to the Emergency Action Plans, oil spill contingency plan, and other safety and environmental information.

Training and Drills incorporating emergency response and evacuation procedures should be conducted periodically for all personnel (including contractor's personnel).

Drills should be based on realistic scenarios conducted periodically to exercise elements contained in the facility or area emergency action plan. An analysis and critique of each drill should be conducted to identify and correct weaknesses.

### **Emergency Shutdown System**

When well-completion operations are conducted on a platform where there are other hydrocarbon-producing wells or other hydrocarbon flow, an emergency shutdown system (ESD) manually controlled station should be installed near the driller's console or well-servicing unit operator's work station.

When well-work over operations are conducted on a well with the tree removed, an emergency shutdown system (ESD) manually controlled station should be installed near the driller's console or well-servicing unit operator's work station, except when there is no other hydrocarbon-producing well or other hydrocarbon flow on the platform.

### **Blow-out Prevention Equipment and Procedures**

The Blowout Preventer (BOP) systems and system components should be designed, installed, used, maintained, and tested to assure well control as per applicable applications.

Key items in reference to BOP equipment:

- ) The BOP stack should be:
  - properly certified
  - shop serviced
  - shell-tested every 3 years.
- ) Equipment, including accumulators, should be operational at all times during drilling operations. Required checks should be completed on schedule and documented as required by BSEE.
- ) Blowout drills should be performed and recorded prior to drilling out any casing.
- ) Well-control drills should be performed and documented by each drilling crew every 7 days, or as needed, to ensure proficiency with the operation, as required by BSEE.

### Emergency Drills

The company should conduct emergency drills as required by the US Coast Guard (USCG) and the Bureau of Safety and Environmental Enforcement (BSEE).

These drills include but are not limited to:

- ) collision
- ) environmental spills
- ) fire and abandon
- ) homeland security
- ) helicopter crash
- ) man overboard

When conducting on-board emergency drills:

- )] All emergency drills should be documented, maintained, and made readily available to the USCG upon request. Records may be destroyed after one year.
- )] Conduct a fire and abandon platform drill at least once each month for manned facilities.
- )] All persons on board should participate in the drill.
- )] In order to distinguish drills from actual emergencies, an announcement should be made over the PA system stating, "This is a drill, this is a drill."
- )] The location of a simulated or actual fire should be announced over the PA system.
- )] Pre-plan drills and vary the nature of the drill to cover a variety of emergency types.
- )] If possible, use equipment to simulate a true emergency, including starting each fire pump.
- )] On larger facilities or MODU's, as part of the drill, simulate Activation of Emergency Shut-off Devices (ESDs) as part of the drill.

Here's a short video demonstrating an emergency drill: [ERT Offshore Drill](#)

### **For On-Board Fire Drills**

When conducting a fire on-board drill:

- )] The person in charge should coordinate emergency procedures from the command center.
- )] Contact shore-based operations and other units in the area to test communication equipment during drills. Inform them that a fire drill is in progress.
- )] All workers are to shoulder at their designated shoulder areas. Promptly take roll call and report it to the person in charge in the command center.
- )] Take appropriate steps to minimize any hazard associated with hazardous material.

- )] Report hazardous materials present at the scene of the fire.
- )] Post a fire watch guard to prevent a re-ignition after the fire is out.

### **Abandon Platform Drills**

Wear properly donned life jackets and other PPE, as necessary, when proceeding to lifeboats or raft embarkation points.

Take a roll call by name. Account for all workers by taking a roll call and report the results to the person in charge. If someone is missing, the person in charge should instruct a rescue team.

### **Emergency Escape to the Water**

In the event of an emergency water escape:

- )] The Station Bill lists locations for emergency escape to the water.
- )] Individual escape into the water is a 'last resort' option used only when other means are not available.
- )] Employees should move to the lowest level possible before jumping into the water.

### **Emergency On-Board Evacuation Plan**

All the following items should be included in the On-Board Evacuation Plan:

- )] Manned structures should have Coast Guard approved Emergency Evacuation Plans (EEPs) on board.
- )] The EEP should address all aspects of a potential emergency evacuation of the platform.
- )] The required contacts should be listed in the EEP.
- )] The EEP should be posted around the rig and be made readily available in escape boats and capsules.

### **Emergency Signals**

In case of the need for emergency signals:

- )] The platform is provided with emergency signals to indicate the following situations:
  - o fire or emergency
  - o abandon platform
- )] When an alarm sounds, workers are to take emergency action as defined in the Station Bill.
- )] The tones and signals used in the alarms may vary because of the requirements of different operating areas.
- )] Demonstration of the actual tones and alarms should be conducted for all new arrivals during the on-platform safety introduction and orientation.
- )] Treat alarms as the real thing until told otherwise.

Check out this webpage on platform alarms at Statoil: [Statoil Platform Alarms](#)

### Lifejackets

When using lifejackets:

- )] Use a minimum of Type I Personal Floatation Device (PFD) with high-visibility tape and the name of the facility or MODU.
- )] Lifejackets are located in storage containers at locations set forth on the Station Bill or safety equipment drawing.
- )] Properly wear lifejackets during emergency drills and during actual emergencies.
- )] When not in use, return lifejackets to their original position.
- )] Notify the supervisor of any lifejacket defects, remove the device from service, and replace.
- )] Fit lifejackets with a whistle and a light. Inspect these at least annually.

Here's a short video on [Type I PFDs How to Inspect/Don a Type I PFD](#)

### Lifesaving Equipment

There should be lifesaving equipment on board to help in the case of an emergency. Everyone should be instructed on the location the equipment. The location is usually detailed in a Station Bill or safety equipment drawing.

To use this equipment:

- ) Keep life floats in a ready condition at all times except when maintenance is being performed.
- ) Life floats installed on platforms are of the throw-over or quick-release type. These are considered escape equipment and should only be used as a last resort.
- ) Ring buoys, located on the handrails as shown on the Station Bill or safety equipment drawing, are available to be thrown to a person in distress.
- ) Ring buoys are equipped with water lights and buoyant lines.
- ) Buoys are not to be permanently secured, tied, or attached to the platform in any way.

### Man Overboard

When a person falls overboard, it's important to know how to respond. Man overboard drills should be conducted. Keep in mind the following techniques and recommendations:

- ) On witnessing a person falling overboard or already in the water, employees should immediately give the call "Man Overboard" by voice or PA system.
- ) It is important not to lose sight of the person in the water. Directing someone else to make the announcement over the PA system may allow workers to keep the person in sight. This is important, as it is often very difficult to relocate a person overboard.
- ) Get help before trying any rescue attempt.
- ) Throw the nearest ring buoy to the individual in the water.

- J Repeat the announcement over the PA system several times. If the location of where the person went overboard is known, include that information in the announcement.
- J Platform workers should notify the standby boat to commence the rescue operation.
- J Throwing floating objects overboard every few minutes will give rescue boats or aircraft a 'line of drift' leading to the person overboard.
- J Gather the rescue team at the nearest lifeboat, capsule, or rescue craft and start the rescue as soon as possible.
- J Maintain continual communications between the rescue craft and the platform and/or standby vessel.
- J Personnel on the facility should be prepared to treat the person, upon retrieval, for hypothermia and any injuries sustained.
- J To make sure proficiency in retrieving a person overboard is maintained, hold man overboard drills at least every 3 months, weather permitting.

### **Hurricane Preparedness**

Weather conditions should be closely monitored by the facility person in charge during hurricane season.

- J The company's Hurricane Preparedness plan should include information on essential and non-essential workers evacuation.
- J Depending on circumstances, it may be necessary to initiate evacuations up to 72 hours prior to the approach of a storm.

### **Lightning**

Lightning tends to strike higher ground and prominent objects, especially good conductors of electricity such as metal found on offshore platforms.

If you see a flash or lightning but do not hear the thunder, the lightning was probably discharged 15 or more miles away.



To determine how far away the lightning is, count the number of seconds between the lightning flash and thunder clap. For every 5 seconds you count, the lightning flash is approximately one mile away. (e.g., you see lightning and count to 6 before you hear the thunderclap. The lightning would be approximately  $1000 \text{ feet} \times 6 \text{ seconds} = 6000 \text{ feet}$  (just more than a mile) away.)

) Follow the 30-30 Rule:

- If you count less than 30 seconds between lightning flash and thunder bang, stop work and take shelter in an enclosed building, vehicle, or in a low-lying area.
- Wait for at least 30 minutes after storm has passed or dissipated before resuming work activities.

Check out this short video of a lightning strike near an oil platform: [Lightning Strike](#)

## Module 5 Quiz

Use this quiz to self-check your understanding of the module content. You can also go online and take this quiz within the module. The online quiz provides the correct answer once submitted.

- 1. When well-workover operations are conducted on a well with the tree removed, \_\_\_\_\_ should be installed.**
  - a. an emergency shutdown system (ESD)
  - b. a behavior-based safety program
  - c. an automatic lockout/tagout system
  - d. an approved OSHA inspection procedure
  
- 2. On-board emergency drills should be conducted to include all the following, except \_\_\_\_\_.**
  - a. homeland security
  - b. helicopter crash
  - c. collision
  - d. pirate attack
  
- 3. The platform should be provided with emergency signals for which of the following?**
  - a. As directed by the safety officer
  - b. Fire
  - c. Testing worker hearing
  - d. BSEE investigation
  
- 4. When using lifesaving equipment on board the platform, ensure all the following, except \_\_\_\_\_.**
  - a. using life floats only as a last resort during escape
  - b. locating ring buoys on handrails
  - c. ensuring ring buoys are tied to the platform
  - d. equipping ring buoys with water lights and buoyant lines

- 5. If you see a flash or lightning but do not hear the thunder, the lightning was probably discharged \_\_\_\_\_ away from the offshore platform.**
- a. 15 or more miles
  - b. up to 15 miles
  - c. 5 miles or more
  - d. Up to 5 miles

## Module 6 – Fire Prevention

### Introduction

To prevent fires offshore, the American Petroleum Institute API RP 14G, Recommended Practice for Fire Prevention and Control on Fixed Open-type Offshore Production Platforms, should be used as a reference. Use the following recommendations in the Fire Prevention Program:

- )] Storage cabinets should be designed and constructed to limit internal temperatures to no more than 325°F with a maximum capacity less than 60 gallons of Class I and Class II liquids.
- )] Store containers with flammable liquids away from the work area, traffic areas, and any source of ignition. Portable flammable containers should be of Underwriters Laboratories (UL) Listed or Factory Mutual (FM) approved, or equivalent.
- )] When flammable liquids are being transferred from one container to another, electrically bond or ground transfer equipment.
- )] Do not make an opening in a firewall that may affect its integrity without formal approval from an authorized company representative.

### Fire Reporting and Response

When there is a fire:

- )] Sound the fire alarm to alert all workers.
- )] The person first observing the fire should call out the location of the fire over the PA system.
- )] Employees should only try to fight the fire if it is in its beginning stage and controllable.
- )] All workers hearing the fire alarm should respond as instructed.

### Firefighting Equipment

There should be firefighting equipment on board every platform or facility in the case of a fire.

Firefighting equipment consists of:

- ) Fire stations consisting of a hydrant, fire hose, and fire nozzle should be located throughout the platform.
- ) Special firefighting systems, such as fixed CO2 or water mist systems and foam systems should be used for helidecks.
- ) Each person should become familiar with all fire-fighting systems and the alarms associated with the activation of these systems.
- ) All persons should leave a fixed fire-fighting system-protected area when the alarm sounds.
- ) Fixed fire-fighting system protected areas should be clearly identified and instructions for activation should be posted.
- ) Fire extinguishers should be of a class suitable for the most likely type of fire in work areas in which they are located.
- ) Smoke and heat detectors, fire eyes, and Temperature Safety Elements (TSE) should be located and available at specified locations on each manned platform.

**Call for help before fighting fires; do not put yourself at risk!**

## Classes of Fires and Extinguishing Agents

Fire Class	Typical Occurrence Materials	Extinguishing Technique and Materials
Class A	Ordinary combustible materials, such as wood, cloth, and paper.	Water, special dry chemicals for use on class A, B, and C fires.
Class B	Vapor-air mixtures over the surface of flammable liquids, such as grease, gasoline, and lubricating oils.	A smothering or combustion inhibiting effect: dry chemical, foam, vaporizing liquids, carbon dioxide, and water fog.
Class C	Electrical equipment where non-conducting extinguishing agents should be used.	Dry chemical, carbon dioxide, and vaporizing liquids. Do not use foam, non-spray water, or water-type extinguishing agents.
Class D	Combustible metals, such as magnesium, titanium, zirconium, lithium, and sodium.	Specialized techniques, extinguishing agents, and equipment have been developed to control and extinguish fires of this type. Do not use normal extinguishing agents on metal fires because of the danger of increasing the intensity of the fire with a chemical reaction between extinguishing agents and the burning metal.



## Fire Extinguishers

Use the following recommendations for fire extinguishers on board platforms:

- ) Properly maintain the fire extinguisher.
- ) Use the most appropriate fire extinguisher for the most likely class of fire expected at the work area.
- ) A common type of fire extinguisher used on platforms is the 30 lb. Low Temperature, dry-chemical type portable extinguisher with an ABC or BC rating.

- )] A BSEE-approved fire prevention plan for platforms should specify the size, type, and location of all fire extinguishers, hoses, reels, etc.
- )] All fire extinguishers should be located as detailed on the approved worker safety and firefighting equipment drawings.
- )] Monthly inspection records should be maintained and annual certifications documented by the Facility Operator.

### **Welding Operations**

When welding is performed, ensure the welder and fire watch are properly trained and authorized. Be sure regulations are followed and hot work authorization permits issued. Also follow the guidelines below:

- )] Welding, cutting, and grinding equipment should only be used by competent/qualified and authorized workers.
- )] Before welding operations begin, get approval from the company/contractor representative, or person with delegated authority, under a Hot Work Permit.
- )] The responsible job supervisor should make sure that safe welding procedures are followed, including:
  - o proper welding grounding procedures
  - o the use of welding flash shields
  - o eye protection for aides
- )] All welders should wear flame resistant clothing fully covering the arms, legs, and torso, meeting standards for NFPA 2112.
- )] If the welder's outerwear is non-fire resistant, the welder should wear fire-resistant clothing (FRC) under their non-fire resistant rated welding garments as needed to ensure that body parts are adequately protected.

- )] Welders should use proper PPE to limit the potential exposure to excessive ultraviolet radiation, fire, explosion, asphyxiation, toxic gases, fumes, or dust when welding or cutting.
- )] Flame arresters or check valves should be equipped on gas-welding hoses.
- )] Equipment containing hydrocarbons or other flammable substances should be moved at least 35 feet horizontally from the welding area prior to the start of welding.
- )] Before welding, move equipment on lower decks at least 35 feet from the point of impact where slag, sparks, or other burning materials could fall.
- )] When equipment cannot be moved, one or more of the following actions should be taken to protect it from the hazards of welding operations:
  - o protect it with flame-proofed covers
  - o shield it with metal or fire-resistant guards or curtains
  - o render the flammable substances inert
- )] If a discharge of flammable fluids occurs from vessels during welding, stop the operation.

If you cannot weld in one of the designated safe-welding areas that you listed in your safe welding plan, you should also meet the following requirements:

- )] You may not begin welding until:
  - o The welding supervisor or designated person in charge advises in writing that it is safe to weld
  - o You and the designated person in charge inspect the work area and areas below it for potential fire and explosion hazards.
- )] During welding, the person in charge must designate one or more persons as a fire watch. The fire watch must:



- Have no other duties while actual welding is in progress;
  - Have usable firefighting equipment immediately available;
  - Remain on duty for 30 minutes after welding activities have ended; and
  - Maintain a continuous surveillance with a portable gas detector during the welding and burning operation if welding occurs in an area not equipped with a gas detector.
- ) Welding should not be performed on piping, containers, tanks, or other vessels that have contained a flammable substance unless the contents are rendered inert and the designated person in charge has determined it is safe to weld. This does not apply to authorized and approved hot tap operations.
- ) Welding is not permitted within 10 feet of a wellbay or production area unless all producing wells in that wellbay or production area have been shut in.
- ) Welding is not permitted during drilling, completion, workover, or while conducting wireline operations unless:
- The fluids in the well are noncombustible, and
  - Entry of formation hydrocarbons into the wellbore have been precluded.

Here is a great video on the duties of the rig welder: [How does the Rig Welder work safe offshore](#)

### Hot Work

Hot work is any work that involves burning, welding, using fire- or spark-producing tools, or that produces a source of ignition. Welding and cutting operations are common to drilling and servicing operations.

Potentially hazardous areas that may require hot work include, but are not limited to, well heads, fuel tanks, mud tanks, tank batteries, gas separators, oil treaters, or confined spaces where gases can accumulate.

- )] Test for flammable gases in the work area before starting any hot work.
- )] Prior to any hot work in process areas or other potentially hazardous areas, a Hot Work Permit should be issued by a company representative.
- )] The work area should be tested and continuously monitored.

### Fire Watch

Most hot work should require at least one fire watch. When this is the case:

- )] A fire watch should be assigned when any welding, cutting, or other hot work operations are being conducted.
- )] The fire watch should not use facility-assigned fire extinguishers. The fire watch should use only fire extinguishers specifically assigned for the purpose of a fire watch.
- )] If hot work is performed over areas where the possibility of fire exists, a second fire watch is assigned in that area during the full fire watch period.

Fire watchers should:

- )] Monitor the atmosphere with a gas detector. If a flammable or combustible gas exceeds 10 percent of the lower explosive level (LEL), the work must be stopped.
- )] Have fire-extinguishing equipment readily available and be trained in its use.
- )] Be familiar with facilities for sounding an alarm in the event of a fire.
- )] Watch for fires in all exposed areas, try to extinguish them only when obviously within the capacity of the equipment available, or otherwise sound the alarm.
- )] Maintain the fire watch at least a half hour after completion of welding or cutting operations to detect and extinguish possible smoldering fires.

### Heaters (Portable)

When working with heaters:

- )] Only competent workers should:
  - o Install, ignite, and service portable heaters.
  - o Perform repairs and maintenance.
- )] Operational flame-failure shutdown devices should be on all portable fired heaters.
- )] Contractors should ensure adequate ventilation to prevent the build-up of carbon monoxide in confined areas or hoarded structures.

### Smoking

When smoking offshore:

- )] Only smoke in designated smoking areas on the platform.
- )] Clearly identify designated smoking areas identified by posted signs.
- )] Do not smoke in the living quarters.
- )] Do not take smoking materials, including matches, out of the accommodation.
- )] Smoking should be permitted only within clearly identified designated smoking areas.
- )] Designated smoking areas should have a metal receptacle for disposal of ashes and cigarettes or cigarette butts.
- )] The use of and/or carrying of 'strike anywhere' matches and lighters is restricted to designated smoking areas and/or non-hazardous work areas only.

### Module 6 Quiz

Use this quiz to self-check your understanding of the module content. You can also go online and take this quiz within the module. The online quiz provides the correct answer once submitted.

1. **When flammable liquids are being transferred from one container to another, \_\_\_\_\_.**

- a. ensure transfer equipment is made of two different metals
- b. never ground or bond the transfer equipment
- c. electrically bond or ground transfer equipment
- d. keep containers at least three feet from each other

**2. A \_\_\_\_\_ fire occurs primarily in electrical equipment.**

- a. Class A
- b. Class B
- c. Class C
- d. Class D

**3. The responsible job supervisor should make sure that all the following safe welding procedures are followed, except \_\_\_\_\_.**

- a. proper welding grounding procedures
- b. use of welding flash shields
- c. eye protection for aids
- d. lifting with the legs not the back

**4. In which of the following potentially hazardous areas on a platform would hot work be required?**

- a. Lower decks
- b. Catwalks
- c. Support structures
- d. Gas separators

**5. Prior to any hot work in process areas or other potentially hazardous areas, which of the following should be issued by a company representative?**

- a. Confined Space Entry Permit
- b. Hot Work Permit
- c. Work authorization
- d. BSEE approval

## Module 7 - Medical Services and Support

It is important that management ensures all workers received guidance and support in arrangements related to employee health and wellness. Arrangements need to be made for medical support during daily operations and emergencies.

The company should make authorized Rig Medics/First-Aiders available. Appropriate facilities, equipment and drugs should be located on offshore locations with backup support onshore.

The company should post telephone numbers, location, and other relative information about medical services, procedures and personnel at all oil and gas facilities.

### Medication and Prescription Drugs

Prescription drugs are defined as medicine obtained through a doctor's prescription.

Medication is defined as a medical treatment obtained legally, over the counter.

Medications of concern are those that inhibit or may inhibit a worker's ability to perform their job safely and provided by the pharmacist. The day carrier should include:

- employee's doctor's names
- the prescription number,
- the date of issuance on the label
- ) Each prescription should not exceed its expiration date.
- ) Employees should only possess the prescribed amount of medication for a normal work shift.

### Exposure Control (Bloodborne Pathogens)

All employees should assist in preventing exposure of communicable diseases to themselves, contractors, and vendors during the course of performing their duties and responsibilities.

On platforms and other facilities, it may be reasonable anticipated that employees can be exposed to blood or other potentially infectious materials while using first-aid supplies, employers should provide PPE.

Appropriate PPE for responding to injuries includes: gloves, gowns, face shields, masks, and eye protection.

BBP kits should be placed strategically where needed on platforms and MODU's.

For more information, refer to your company's Bloodborne Pathogens Program (BPP) and [OSHAcademy Course 755](#).

### **Eyewash Stations**

Eyewash stations should be located around the platform/MODU to provide clean water for eye washing in the event that eyes become contaminated with hazardous substances.

Make sure each station:

- ) Is kept clean and free from dust, fluids, oils, greases, and other contaminants.
- ) It is available for use before and during the commencement of work.
- ) Bottle-type dispensers should be checked for the following:
  - o tampering
  - o expiration date
  - o only new, closed, intact bottles are used
- ) Refill-type eyewash stations should contain enough water to irrigate the eyes for 15 minutes or as defined by the manufacturer. Water should be changed out every month.
- ) Test emergency showers and supplied water type eyewash stations to verify that they are working properly.

### **First Aid/CPR**

One or more persons, trained and authorized to respond to emergencies with first aid and cardiopulmonary resuscitation (CPR) techniques, should be available at the worksite during normal operations.

- )] First-Aid/CPR equipment and supplies should be checked and tested as necessary, and should be located to provide easy access.
- )] First-Aid/CPR responders should be trained using approved courses provided by the American Red Cross, American Heart Association, or equivalent training.
- )] Retraining in first aid should be conducted at least every 2 years to maintain competency.



## Module 7 Quiz

Use this quiz to self-check your understanding of the module content. You can also go online and take this quiz within the module. The online quiz provides the correct answer once submitted.

- 1. Which of the following should be assigned to provide medical services and support on all offshore platforms?**
  - a. Ambulance services
  - b. At least one medical doctor
  - c. A fully-staffed surgical suite
  - d. Authorized Rig Medics/First-Aiders
  
- 2. Which of following actions related to the use of medications are allowed on platforms and facilities?**
  - a. Using medications obtained from another person
  - b. Possession of medications without a prescription
  - c. Using medications as prescribed
  - d. Distributing medications to others
  
- 3. On a platform, employees should only possess the prescribed amount of medication \_\_\_\_\_.**
  - a. for at least 3 shifts
  - b. for a normal work shift
  - c. for a period of one week
  - d. for the period of the prescription
  
- 4. What may be assumed about the presence of bloodborne pathogens on platforms and other facilities?**
  - a. Employees are isolated from bloodborne pathogens on platforms
  - b. Employees will not come into contact with bloodborne pathogens
  - c. There is no need for protective measures against bloodborne pathogens
  - d. Bloodborne pathogens may be reasonably anticipated

**5. Which of the following is true regarding the use of eyewash stations on an offshore platform?**

- a. They should contain enough water to irrigate the eyes for 15 minutes
- b. They should operate automatically with one button
- c. They should be located only in the infirmary
- d. They should contain special fluids that are neutral in pH

## Endnotes

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