SPECIAL HAZARDS
PROTECTION

AUTOMATIC FIREFIGHTING SYSTEMS IN OFFSHORE PLATFORMS

Hazard type

The main areas to be protected on a platform with **AUTOMATIC EXTINGUISHING** are:

- DIESEL GENERATORS
- TECHNICAL ROOMS
- IT ROOMS
- PAINT ROOMS
- WORKSHOPS
- ELECTRICAL PANEL ROOMS
- ELECTRICAL TRANSFORMERS
- CONTROL ROOMS
- BATTERY ROOMS
- REFRIGERATION ROOMS
- LOW VOLTAGE SWITCHROOMS

Offshore platforms are areas devoted primarily to offshore oil and gas extraction. They can be classified into two main types based on their structure: floating at sea or anchored to the seabed (when not very far from the coast).

They have all the facilities required to carry out extraction work and accommodate its employees. Being at sea, they should operate as independently as possible from the coast, so **they contain complex facilities for generating and transforming electricity and storing liquid and flammable fuel.**

The proper design of these platforms is very important to maximize existing space. They must also be duly prepared to withstand the harsh weather conditions of the place where they are located, such as large waves and wind gusts, storms and low temperatures.

Offshore installations face a high risk of fire due to many electrical devices and large combustible liquid storage tanks. Specifically, the hazard to be considered, according to the regulations, will be the risk of fire in combustible solids, flammable liquid fuels and flammable gases.

Proper fire protection is very important in these platforms because the facilities are **very expensive and evacuating personnel in the event of a fire can prove very difficult.**

The offshore location makes it very complicated for external extinction means to access it, so the oil rig should be properly designed to prevent potential hazards and be able to extinguish any fire outbreak with available resources.

The way of installing the extinguishing media must also be examined in order to save the maximum amount of space.

Protection

Choose the most appropriate extinguishing system for each room based on the hazard so different automatic extinguishing features could exist in the same platform, including: **inert gases, chemical gases, dry chemical and foam.**

Fire protection to prevent accidents focuses on prevention and extinguishing.

PREVENTION

Prevention occurs through proper design of facilities, the materials used, distribution and maintenance of installations, and enforcement of existing health and safety legislation.

Attention should be paid to the refurbishment actions that could be carried out in the room which could be dangerous, such as welding, vehicle and machine traffic.

EXTINGUISHING

It works through a detection system that triggers the installed fire protection systems automatically, not giving the fire a chance to spread.

The method selected must protect fire hazards using properly placed nozzles to cover all hazard areas, which may be by total flooding in some rooms and local application in individual components such as transformers.

The fire protection should be considered in two versions:

1. ***Physical protection of facilities***
2. ***The protection of workers, to prevent injury in case of fire or explosion.***

Fast response agent and equipment

The quicker the response time to a fire, the less the equipment will be damaged and the risk of uncontrolled fires and explosions will be reduced.

For this, it is necessary to have a detection system that automatically triggers the release of the extinguishing system to produce the discharge practically immediately.

The fire is usually detected electrically via a fire panel equipped with flame, smoke or temperature sensors. When deemed necessary, this system can feature a mechanical and mechanical-pneumatic detection system that can operate autonomously without power. They must also have manual release in case of emergency.

Choosing the right agent for the type of hazard

ELECTRICAL ROOMS

Electrical rooms, such as control rooms or electrical panels, store all the platform's electrical and automation systems. These are critical hubs to ensure that the facility runs properly.

Electrical rooms are considered as enclosures capable of being occupied because authorized personnel may enter at any moment, so a clean and harmless agent must be used.

The main causes of fire which can occur in this sort of installation are due to internal factors such as sparks from breakers, shortcircuits, overloads, static electricity, and external factors such as dirt, heat-generation installations, sunlight, and environmental thermal conditions.

The main solutions adopted for this type of hazard are HFC-227 and inert gases.

The most effective protection method for spaces of this type is total flooding, involving the release of an agent into the enclosure so that a minimum concentration is reached throughout the hazard area, for the protection of both the entire room and the panel itself.

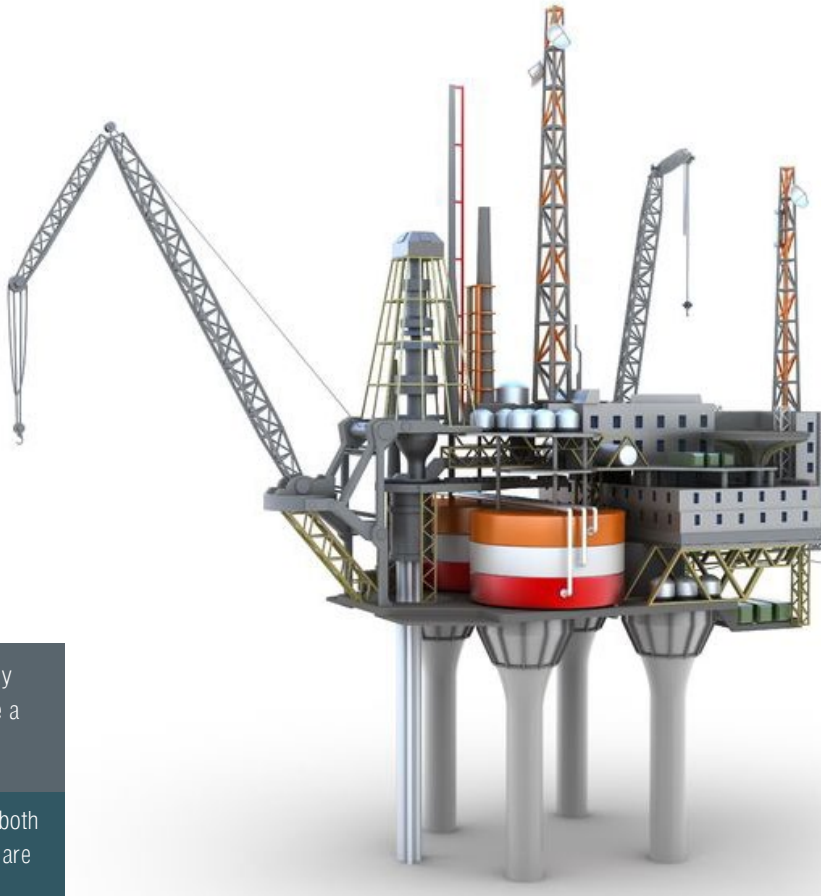
Extinguishing systems may be placed within electrical panels with small SIEX™ SMS systems.

TRANSFORMERS

Transformer rooms house electromagnetic devices which can increase or decrease the electric voltage and current.

In case of fire, the value of losses depends not only on the material value of the equipment, but also on the indirect consequences which can be dramatic for the platform, cutting power supply, stopping activity and even forcing the evacuation of the platform.

Given the importance of the transformers and their cost, the need arises for the installation of fixed fire protection systems.



Among the transformers in enclosures, oil-filled ones are a particularly high fire hazard, since it has a relatively low flash point and therefore a risk of fire with a considerable release of smoke.

At SIEX we are highly experienced in the protection of transformers, both oil-filled and dry. The main solutions we adopted for this type of risk are CO_2.

SOLUTIONS
with gaseous agent systems

SIEX HC 227

SIEX-HC™ 227 has cylinders from 6 to 514 litres, with either high or low working pressures. Meanwhile, SIEX™ SMS has capacities from 2 to 13.4 litres and a working pressure of 15 bar or 25 bar.

IDEAL FOR OCCUPIED AREAS
INCREASES THE SAFETY MARGIN
HIGH EXTINGUISHING CAPABILITY
STORAGE FROM 24 TO 60 BAR.
NON-CORROSIVE
NON-CORROSIVE ELECTRICAL AND ELECTRONIC

It delivers very stable performance, ensuring great reliability both during storage and at the moment of discharge. Users can be assured that a certain amount of HFC-227 that has not been used for a long time will not under-perform.

IDEAL FOR OCCUPIED AREAS
OBTAINED FROM THE ATMOSPHERE
LOW-COST AGENT
EXCELLENT VISIBILITY FOR EVACUATION
CHEMICALLY NEUTRAL
STORAGE PRESSURES OF 150, 200 AND 300 BAR.
LONG PIPE RUNS.

SIEX INERT

IG-01 – Argón.

IG-55 – Argón y Nitrógeno al 50%.

IG-100 – Nitrógeno.

IG-541 – 52% Nitrógeno +40% Argón +8% CO_2

Its high pressure allows the use of long pipe runs and selector valves. Extinguishing agent could thus be saved by having buildings devoted solely to data storage or having various clean rooms for this use, with the associated savings in money, space and weight load on the building structure.

SIEX has a VdS approved weighing device. This allows efficient, accurate and totally reliable fill control of cylinders in each system.

SIEX CO_2

NO RESIDUE, NON-CORROSIVE
IMMEDIATE, HIGHLY EFFECTIVE EXTINGUISHMENT
LOW COST AND EASY TO SUPPLY
CLEAN, NO RESIDUES

The SIEX-CO_2™ system is composed of high-pressure cylinders, either modular or in banks, depending on the amount of gas needed as assessed during installation, which is carried out in a personalized manner in each case.

The high CO_2 pressure allows using long pipe runs in large installations and being able to separate cylinders from the protected hazard in case of risk of explosions.

The SIEX-CO_2™ systems are suitable both for total flooding with calibrated radial nozzles and for local applications with cup nozzle.

It is important to have a backup cylinder bank to maintain the installation at standby in case of discharge, due to the difficulty of undertaking maintenance work on an offshore platform.

OTHER SPECIAL HAZARDS PROTECTED BY SIEX:

WIND GENERATORS

ELECTRIC GENERATORS

TRANSFORMERS

DATA CENTERS

SOLAR ENERGY

OIL AND GAS

TELECOMMUNICATION

TURBINES

ARCHIVES AND LIBRARIES

HOTELS

HOSPITALS

EDUCATIONAL FACILITIES

STEEL INDUSTRY

MACHINE TOOLS

PAINT SPRAY BOOTHS

ELECTRICAL PANEL ROOMS

CLEAN ROOMS

PRINTING INDUSTRY

TIMBER INDUSTRY

OFFSHORE PL

C/ Merindad de Montija, 6
P.I. Villalonquéjar
09001 Burgos (SPAIN)

tlfno: +34 947 28 11 08
fax: +34 947 28 11 12

siex@siex2001.com
www.siex2001.com

SIEX®