Petroleum, Oil & Gas (POG) Facilities

Fire hazard risk in POG facilities typically involves areas where flammable liquids, hydrocarbons or gases are either transported or stored. A significant part of the site also lies outside of these storage and transportation areas and includes backup power supplies; emergency facilities such as data communications, control rooms, and environmental controls; and other ancillary buildings. These areas are critical to the continued safe operation of the overall facility and must be effectively protected against fire risk to help assure safety, maximize uptime and secure vital assets.

Johnson Controls understands the challenges of fitting fire suppression systems in the space-limited infrastructure of POG applications, and our solution is twofold: a time-proven clean agent delivered to the protected area using state-of-the-art SAPPHIRE PLUS suppression system technology. The liquid storage of the agent simplifies the handling and charging of containers; an important consideration for offshore POG facilities.

SAPPHIRE clean agent systems contain 3M™ Novec™ 1230 fire protection fluid, an effective fire suppressant designed for special hazard, high value applications. This environment-friendly halocarbon liquid is a replacement for halon as an alternative to HFCs, HCFCs and PFCs. SAPPHIRE clean agent systems provide the right balance of fire suppression performance, end of use safety, and environmental sustainability. The agent is a clear, colorless, low odor, liquid that is super-pressurized with nitrogen and stored in high-pressure containers. Although it is stored as a liquid, it will turn to gas upon discharge making it an effective total flooding agent for POG fire hazards. As a clean agent, it leaves no residue behind and will not affect sensitive high-value assets such as electronic switchgear and machinery.

Advanced SAPPHIRE PLUS system technology enables engineers to reduce storage container footprint, complexity and size of the pipe network. Its innovative electric actuator contains a built-in placement indicator eliminating the need for a secondary device. The system is approved for use with selector valves, allowing a single container bank to provide fire protection to multiple hazard areas. The technology also provides a storage pressure of 70 bar (1013 psi) enabling greater agent capacity in fewer containers. The increased storage pressure also facilitates extended pipe run capabilities.

Application:

- Control rooms, data processing facilities, and other functional support areas

Solution:

ANSUL® SAPPHIRE® PLUS Clean Agent Fire Suppression System

Challenge:

Protecting critical operational infrastructure in cramped conditions
Effective fire suppressant designed for special hazard, high value applications

The SAPPHIRE PLUS System is most effective when used with an AUTOPULSE Automatic Detection and Control System to release the clean agent rapidly. The detection system is used to either directly actuate a fire suppression system or to notify personnel that the system should be actuated by manual/pneumatic means.

The ANSUL® SAPPHIRE PLUS system is UL/ULC listed and carries FM and EN approvals. The system can be designed to meet the requirements of NFPA 2001, EN 15004 and ISO 14520 with components approved to provide top quality fire suppression.

In short, SAPPHIRE PLUS technology expands system flexibility to enable engineers to accommodate the fire suppression system in a less obtrusive way by addressing many of the concerns previously associated with halocarbon systems.