
incos
ENGINEERING
the experts for your integrated fire protection systems
innovative consultancies safety engineering

Fire Safety Engineering & Consultancy Services

Safety design is a process defined as the integration of hazard identification and risk assessment methods early in the design process to eliminate or minimise the risks of injury throughout the life of a structure being designed. Safe design is everybody's business - from clients to designers to constructors.

Subject matter experts within Active Fire Protection Systems. In summary we ensure the facts and details are correct so that the project's/program's deliverables will meet the needs of the stakeholders, legislation, policies, standards, and best practices.

Capabilities:

FEED / Conceptual Engineering | Basic Engineering | Detailed Engineering | Pre-Operation | Operation | De-commisioning

FEED / CONCEPTUAL ENGINEERING

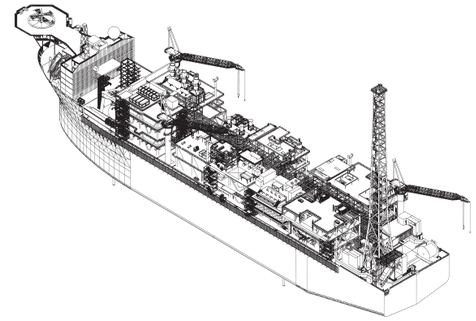
- Hazardous Area Evaluation, Fire Risk consideration, preparation of Fire Protection equipment / system specifications
- Material and Corrosion Technology; advisory on suitable materials for Fire water Systems
- Review of applicable environmental regulations/policies/guidelines and performance standards for foam concentrate selection

BASIC ENGINEERING

- Preparation of Fire Protection Plot Plans, Piping and Instrument Diagrams
- Design of deluge distribution piping
- Preparation of technical proposals from analysis of specification and standards, evaluating options/alternatives, designing/sizing
- Fluid mechanic calculations: Pressure, flow rate, head losses, pump duties, (using software Pipenet, Bernoulli's principles, Darcy-Weisbach and Hazen-Williams equations etc)
- Nozzle/discharge equipment selection (coverage, throw/reach, foam expansion ratio)

DETAILED ENGINEERING

- Design of deluge, sprinkler, foam nozzles layout drawings
- Perform Hydraulic calculations and balancing of deluge piping distribution systems
- Foam concentrate proportioning calculations and proportioner's selection
- Write System functional specifications

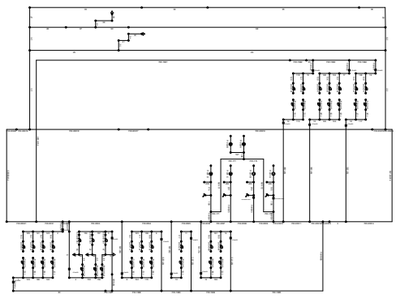


PRE-OPERATION

- Installation and Commissioning Procedures
- Generic Maintenance Strategies and Preventive Maintenance Programs
- Equipment Operations Performance Standards and testing programs

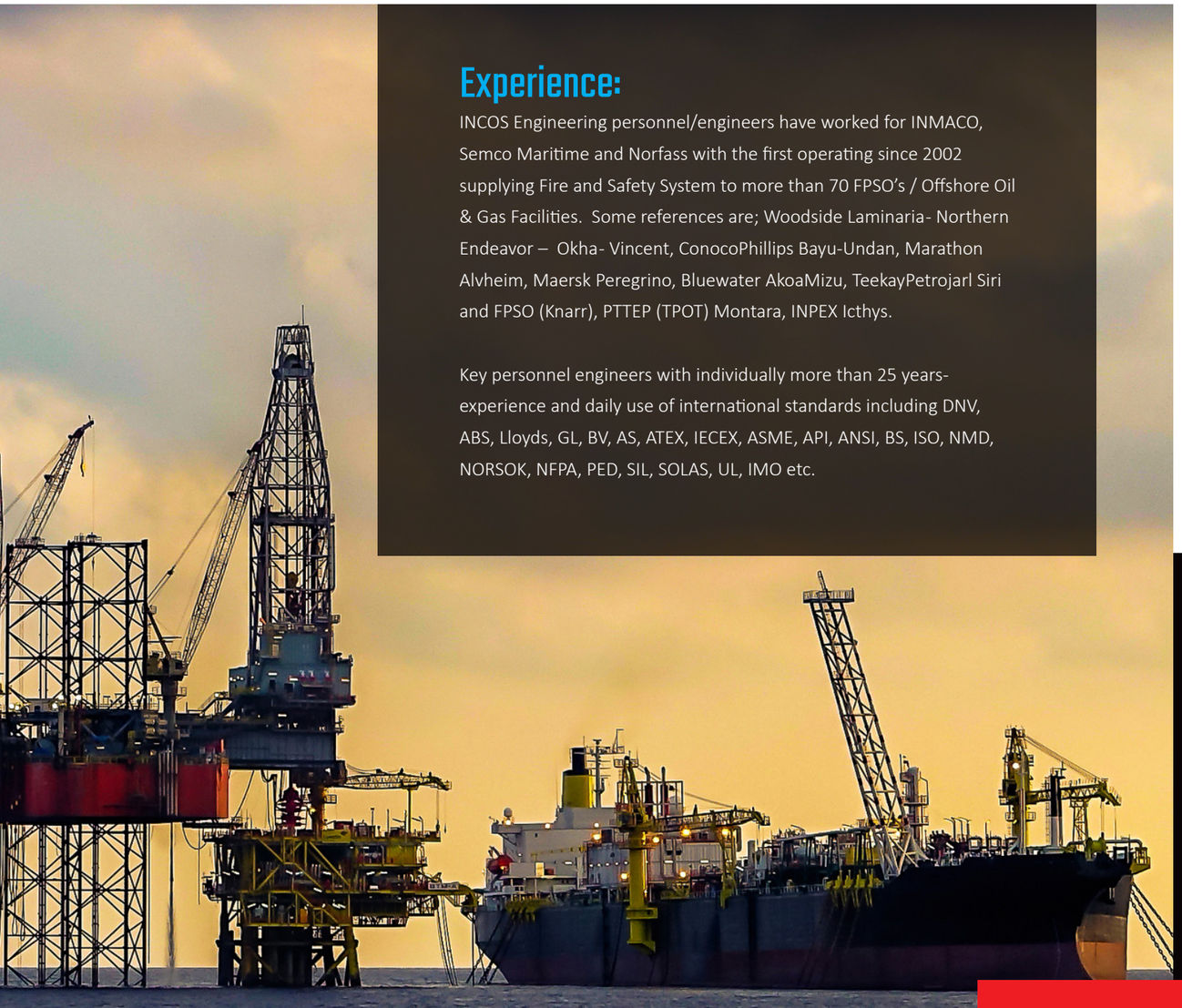
OPERATION

- Optimisation of Operators Programs for Inspection, Testing, and Maintenance
- Performance Strategy and testing procedures
- Site surveys and review of facilities fire water systems
- Provide specialised expertise in the design, testing and commissioning for fire protection systems (sprinklers, deluge, foam, hydrants, hose reels, gaseous systems etc)
- Foam concentrate transition feasibility review
- Life Extension Programs



DE-COMMISSIONING

- Environmental Management of Fire fighting Foam Policy
- Fire fighting foam and fire water waste inevitably contain components that class as regulated wastes that require special handling, treatment and disposal



Experience:

INCOS Engineering personnel/engineers have worked for INMACO, Semco Maritime and Norfass with the first operating since 2002 supplying Fire and Safety System to more than 70 FPSO's / Offshore Oil & Gas Facilities. Some references are; Woodside Laminaria- Northern Endeavor – Okha- Vincent, ConocoPhillips Bayu-Undan, Marathon Alvheim, Maersk Peregrino, Bluewater AkoaMizu, TeekayPetrojarl Siri and FPSO (Knarr), PTTEP (TPOT) Montara, INPEX Icthys.

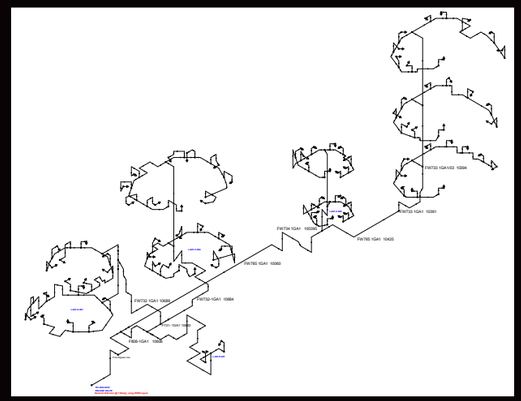
Key personnel engineers with individually more than 25 years-experience and daily use of international standards including DNV, ABS, Lloyds, GL, BV, AS, ATEX, IECEX, ASME, API, ANSI, BS, ISO, NMD, NORSOK, NFPA, PED, SIL, SOLAS, UL, IMO etc.

INCOS use the globally recognised computer program "PIPENET" for hydraulic calculations.

Specifically intended for the design of fire protection systems. PIPENET Spray/ Sprinkler complies with the NFPA13, NFPA15 and NFPA16 rules. The module is used for designing a wide range of fire protection systems i.e. sprinkler, deluge, ring-main, and foam solution.

The result of the hydraulic design process is a written report discussing the results from the computer calculations, a noded isometric drawing, and the actual printout of the hydraulic report.

Our Engineers have experience in evaluating the results obtained from the calculation program, and will give recommendations needed to obtain the most balanced and efficient fire water distribution system.



Maintenance Engineering

PREVENTIVE MAINTENANCE

Planned and meticulous maintenance of facility assets, equipment and infrastructure is the key component to continuous and sustained operations in the field.

Incos Engineering Programmed Service & Maintenance provides assurances to the customer that all is being done to provide continuous uninterrupted operation by maximising functional reliability and effectiveness of the safety critical Firewater system.

SAFETY, SAFETY, SAFETY!

Potential hazards in the oil and gas industry are well-documented. Accidents lead to safety incidents and loss of production that can damage entire regions. Safety must be an integral element in every facet of industry operation.

Common sense tells us that proper maintenance of oil and gas processing facilities is key, in today's tight energy market, to ensure continuous, uninterrupted operation.

PLANT RELIABILITY

Ensuring minimal damage to the environment is caused as a result of oil and gas operations. Reliability and safety go hand-in-hand, making sure that major incidents with the potential to affect the workforce and wider community occur as infrequently as possible.

Poor plant reliability also causes uncertainty among both investors and customers, ultimately impacting on the bottom line.

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