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CASE STUDY

WELL-SAFE GUARDIAN

Integrated fire protection engineered for mobilisation-critical diving operations, delivering Class-aligned readiness, reduced risk, and dependable safety performance across WellSafe Guardian.

Executive Summary

To support the reactivation of the **WellSafe Guardian** for North Sea deployment, **Well Safe Solutions** required a **Class aligned, integrated fire protection solution** for its new commercial diving spread. Flare Fire Safety Engineering delivered a combined **high pressure water mist (HPWM)** system for internal spaces and **deluge protection** for external areas, ensuring life support systems, diving control environments and personnel were protected throughout mobilisation.

The project met critical reactivation milestones, with the deluge systems signed off on 18/08/2023 and water mist on 06/09/2023, keeping the vessel's readiness on track.

This scope followed a **major contract award**, publicly recognised in *Energy Voice*, highlighting Flare's capability, specialist engineering expertise, and leadership in sustainable water based suppression systems.

At a Glance

Client: Well-Safe Solutions

Asset: Well-Safe Guardian – Commercial Diving Spread

Location: Burntisland, Fife (onshore) + North Sea (offshore)

Shipyard Partner: Malin Newbuild

Drivers: Mobilisation schedule, Class compliance, personnel safety, equipment integrity, ESG alignment

Systems Delivered:

- High Pressure Water Mist – internal diving module spaces
- Deluge Systems – external lifeboat and pipe deck zones
- MED Approved Firefighting Equipment (final list subject to confirmation)

Approvals: IMO A.800/MSC Circ 1165; IMO Res A.1430; NFPA 15; Class oversight via Lloyd's Register (client-led)

Industry Recognition: Major contract announcement featured in *Energy Voice*

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Client Objectives

Well-Safe required a solution that would:

- Protect **diving operations and life-support systems** in confined, equipment dense spaces.
- Maintain **Class compliance** while minimising impact on the yard schedule.
- Reduce operational risk across internal control spaces and external high hazard areas.
- Meet mobilisation critical deadlines to safeguard campaign start windows.
- Support ESG ambitions through water efficient, low carbon suppression technology.

Operational Context

The commercial diving spread includes **control rooms, life support systems, machinery spaces, workshops**, and external egress/ embarkation zones.
Any fire within these areas presents a risk to:

- Personnel safety
- Electrical and life support equipment integrity
- Mobilisation timelines and project revenue

The Challenge

Complex Technical Integration
Flare was tasked with delivering a fully integrated solution combining two suppression technologies across a module with **varied risk profiles** and strict weight and space constraints.
Key challenges included:

- **Long equipment lead times**, particularly for HPWM components. Flare sequenced the programme to progress work with early arriving materials and avoid downtime.
- **Pipework routing changes**, requiring multiple iterations of hydraulic calculations and updated bills of material. Client communication remained continuous throughout.
- **Tight mobilisation windows** and dependencies on other contractors, with some date slippage originating outside Flare's scope.

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The Integrated Solution

1) High Pressure Water Mist (HPWM) – Internal Spaces

Zones Covered:

- Bell Hangar
- LARS Room
- Chamber Hall
- Machinery Space
- Gas Bag Flat
- Office
- Dive Control Room
- Workshop

Why HPWM was selected:

- Rapid fire knock down while minimising water damage to sensitive assets
- Electrically non conductive mist suitable for live control environments
- Significantly reduced water consumption (typically 85–90% lower than open nozzle deluge)
- Lower carbon footprint and reduced reliance on gaseous agents (ESG-aligned)

System Highlights:

- Pump operating range ~60–140 bar with inbuilt redundancy
- Bulb and open type nozzles; electro/hydraulic valves
- AS1 PLC-controlled cabinet and alarm integrations
- Fully type approved Ultra Fog technology (FM, IMO)

Industry Commentary:

Ultra Fog's leadership emphasised the value of Flare's local expertise, 30+ years of OEM experience, and the importance of strong distributor partnerships in delivering high performance systems to the North Sea.

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2) Deluge Systems – External Risk Zones

Zones Covered:

- Pipe Deck Area
- Lifeboat Embarkation Area

Why Deluge was required:

- Cooling and protection in exposed zones
- Compliance with IMO Res A.1430 and NFPA 15 standards
- Ensures safe egress routes in the event of an escalation

System Highlights:

- Pneumatic/manual deluge valves
- Galvanised Schedule 40 pipework; stainless steel tubing
- Designed for marine environmental resilience

3) Marine Firefighting Equipment

MED approved extinguishers supplied: 32x foam + CO_2, along with associated signs and brackets.

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Programme and Delivery

Engineering & Class Interface

Flare supplied all required **type approval documents**, supporting the client's Class approval process with Lloyd's Register. No significant Class issues were raised.

Onshore Installation (Burntisland)

- Pump station installation
- Pipework routing and nozzle placement
- Electrical control system integration

Work was re sequenced to mitigate supply chain challenges.

Offshore Integration & Commissioning

- Mechanical/electrical tie ins
- Hydrostatic and functional testing
- Site Acceptance Testing (SAT)

Deluge accepted 18/08/2023, water mist accepted 06/09/2023.

Collaboration

The project benefitted from strong collaboration between **WellSafe**, **Malin Newbuild**, **Flare**, **Ultra Fog**, and **Class**, providing a single coordinated interface that accelerated decisions and reduced programme risk.

Energy Voice highlighted WellSafe's rationale for awarding the contract to Flare:

> *"Specialist knowledge, engineering experience and robust safety inspection protocols made them the clear choice."*

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Outcomes & Impact

Operational Readiness

- All systems delivered and accepted ahead of key mobilisation activities.
- External delays were absorbed through flexible sequencing.

Risk Reduction

- Integrated suppression across critical life support and control environments.
- External deluge protects lifeboat and egress routes.

ESG Strengths

- HPWM offers a significantly lower carbon footprint and markedly reduced water use (85–90% reduction) versus typical deluge systems.

Client Confidence

- The Energy Voice feature reinforced WellSafe's trust in Flare:
  "A vital protective layer to our dedicated well plug and abandonment asset."

Demonstrated Capability

- Flare's leadership highlighted the project's technical uniqueness, weight constraints, and the value of close OEM collaboration to meet strict diving module criteria.

Compliance & Assurance Summary

Standards:

- IMO A.800/MSC Circ.1165
- IMO Res A.1430
- NFPA 15

Class:

- Lloyd's Register (client-led)

Industry Recognition:

- Featured by Energy Voice in 2022 contract coverage: *https://www.energyvoice.com/promoted/423858/major-high-pressure-water-mist-contract-won-by-flare-article-is-free/*