

Safety Engineering and Safety Management



Sula has extensive experience of providing technical safety engineering and safety management support across the defence and aerospace industries. We offer Subject Matter Expertise in a broad range of equipments as well as bringing a deep understanding of operational issues and challenges. This expertise combined with a detailed understanding of military and civilian standards, legislation and regulations, ensures that the safety support provided to our clients will be fully reasoned, objective and technically rigorous.

Overview

Sula draws on a team of dedicated safety, environmental and engineering specialists, with experience in the Land, Sea, Air, Munitions and Nuclear domains.

Our team has extensive experience of both MOD and civilian Safety and Environmental policies, procedures and statutory requirements.

Approach

Safety engineering provides assurance, through the development of a Safety Case, that all conceivable occasions where the system presents a hazard are identified.

The risk associated with each identified hazard is evaluated in terms of its likelihood and its consequences. Methods for eliminating or minimising the risks identified and implemented. Safety assurance is ultimately provided by certifying that the residual risk presented by a system is at a level that is ALARP (As Low As Reasonably Practicable).



Capabilities:

- Independent Safety Advice
- Development of Project Safety Management Plans and Project Safety Management Systems
- Safety Requirements Capture
- Hazard Identification & Analysis
 - PHA, SWIFT, HAZID, HAZOP, FFA, FTA, ZHA
- Risk Assessment
- Identification of Risk Mitigation and Reduction methods
- ALARP Justification
- Safety Case Preparation
- Creation of Bespoke Hazard Logs

Standards

- Def Stans 00-54, 55, 56 & 58
- JSPs 430, 520, 375 & 454
- ASEMS (POSMS & POEMS)
- ISO 9001 & 14001
- ARPs 4754 & 4761
- CS & FAR 25

Typical Projects

MGMS IPT - Safety Case Support

Sula's Safety Engineering team produced legacy system Safety Cases (in accordance with JSP 430) and Certificates of Safety (Ordnance, Munitions and Explosives) submissions (JSP 520) for the Maritime Gunnery and Missile Systems Integrated Project Team (MGMS) IPT.

The Defence Ordnance Safety Group's (DOSG) Ordnance Safety Review Panel (OSRP) subsequently issued

Certificates of Safety for all the missiles; this was a first for legacy complex weapons systems.

- **GWS 25 Conventional Launch Seawolf**
- **GWS 26 Vertical Launch Seawolf**
- **GWS 30 Sea Dart**
- **GWS 60 RNSL Harpoon**
- **Radar Type 996; Royal Navy medium range surveillance and target indication radar**

Sula's responsibilities included chairing the various HAZID meetings, overseeing the programme, contributing to the preparation and production of the Equipment Safety Management Plans and the preparation and production of various Safety Case Reports, (System, Munition, Missile Dynamic, Transportation and Storage/ Maintenance) Safety Assessments and the development and maintenance of the bespoke Hazard Log database.

Meteor Missile - Software Safety Case



Sula prepared an Interim Software Safety Case Report for MBDA (UK) to support the System Level Safety Case for the Meteor Air Launched Demonstrator (ALD). The missile was a development variant of the Meteor Beyond Visual Range Air to Air Missile (BVRAAM), to be launched from amongst others; Eurofighter Typhoon, Rafale and Gripen.

The safety argument was developed in accordance with Def Stan 00-55 Issue 2 and JSP 188 using Goal Structured Notation (GSN); this ensured it was entirely compatible with the Meteor System Safety Case. GSN was used to structure the Safety Case, as it provided a clear, easy to review, format in which to present the safety argument. In addition to developing the Safety Case Report, we conducted an evaluation of the Safety Requirements and analysed the existing Hazard Log, system design, project plans and system test documentation.

Medium Armoured Systems (MAS) IPT – Urgent Operational Requirement (UOR)

Sula's experience, judgement and pragmatic approach to safety engineering is of particular benefit to Urgent Operational Requirements.

Sula recently completed a safety management plan for a MAS IPT UOR in accordance with POSMS and JSP in only four weeks.

Aerospace



For the Airbus A350 aircraft programme, Sula developed the Particular Risk Requirements for the fuel tank explosion risk ensuring compliance with FAA and EASA certification needs.

Sula are currently compiling a full suite of safety documents required for the Airbus Single Aisle, Long Range & A350XWB programmes, including the Functional Hazard Assessment (FHA), Preliminary System Safety Assessment (PSSA), Common Mode Analysis (CMA) and Particular Risk Assessments (PRA).

High Frequency Towed Array (HFTA) Safety Case

J&S Marine contracted Sula to improve all aspects of the Safety Case work of a HFTA. Following a safety audit and the early engagement of the various Stakeholders (NEW IPT, Dstl, NSTP30 and Drumgrange Ltd), Sula produced a coherent and concise Safety Case, including a Hazard Log that was kept to Restricted to allow it to be distributed to and used by a wide range of stakeholders.

Nuclear

The Sula Nuclear Safety Team actively supported BAE Systems Marine Limited with the research, compilation and presentation of several different aspects of the Nuclear Safety Case for the Astute Class submarine.

As part of the Safety Case production, Sula assisted in the preparation of System Design Descriptions, Safety Principles Papers and Base Safety Reports.

Various other tasks undertaken in this programme of work were;

- Hazard Identification and Assessment
- Dependent Failure Investigations
- Zonal Hazard Analysis

For more information
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