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System Safety Management and Assurance Capability Profile

Quorum Logistic Support Limited (Quorum) Consultants have obtained academic qualifications from the University of York in Safety Critical Systems Engineering. Quorum has working knowledge of many of the methods, tools and techniques considered most appropriate by the UK Ministry of Defence (MoD) and other Industry sectors.

Safety Engineering is a systematic process for identifying, tracking and resolving safety hazards and quantifying and managing Risks to a level that is either acceptable or tolerable to the Customer using the As Low As Reasonably Practicable (ALARP) principles. It is a key factor in the drive to improve Safety and reduce Risk whilst maintaining operational capability and equipment cost effectiveness.

Def Stan 00–56 Safety Management Requirements for Defence Systems requires that the level of effort expended on safety management and the detail of the analysis shall be commensurate with the potential risk posed by the system, the complexity of the system and the unfamiliarity of the circumstances involved, such that the resultant Safety Case is sufficient to demonstrate that the system is safe, so far as is reasonably practicable. The Def Stan requires Safety Engineers to be Competent and JSP 454 requires the use of Suitably Qualified and Experienced Personnel (SQEP). The academic qualifications and experience of the Quorum Team adequately fulfil these requirements.

The resultant output of the System Safety process is a Safety Case which consists of a structured argument, supported by a body of evidence that provides a compelling, comprehensible and valid case that a system is safe for a given application in a given environment.

System Safety Activities:

Quorum has provided multiple Safety Cases on vehicles and equipment supplied to the UK MoD using Def Stan 00-56, JSP 454 and the Project Oriented Safety Management System (POSMS) process using the Cassandra Database for hazard management. Quorum has also provided Safety Assessments using Mil Std 882D and the Swedish System Safety Handbook for overseas customers. The safety activities conducted include Hazard Identification, Hazard Analysis, Risk Review and Sentencing, Risk Mitigation and Management, assessment of Legislative Compliance and the production of the Safety Case Report with the required evidence to provide the assurance that a system is tolerably safe to be accepted by the Customer. These activities have been carried out on the following projects:

- Safety Management Prime on behalf of MAN Truck & Bus UK Ltd for the Support Vehicle (SV) project to supply and support over 7,000 vehicles to the British Armed Forces. Quorum was responsible for the successful Safety Management activities and delivery of the Safety Case. The scope of the Safety Management programme covered Cargo, Unit Support Tanker and Recovery variants including due consideration of all integration activity. The total project included five different vehicle chassis, seven vehicle types and forty two sub variants. Following the successful delivery of the Def Stan 00-56 compliant SV Safety Case, Quorum were complimented on the document by the Independent

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Safety Auditor (ISA) who remarked that it was a very comprehensive Safety Case and the best seen in the Land Systems arena;

- JCB High Mobility Engineer Excavator (HMEE) – Safety Case provided for the HMEE which is built in the USA and converted to comply with European Union legislative requirements. The Safety Case was completed under the constraints of an Urgent Operational Requirement timescale and described by the Manoeuvre Support Project Team Safety Lead as "outstanding";
- Air Defence System Integrator (ADSI) – Safety Management Plan and Safety Case provided for low population legacy and updated 'Modified Military Off The Shelf' (MMOTS) systems. The time frame was challenging and required assessment of past In-service performance of the legacy system.
- WATCHKEEPER – Independent Safety Advisor and Safety Support to the Ground Elements Hardware Safety & Engineering Team.
- Large Capacity Aircraft Refuelling System (LCARS) – Safety Case provided for the Royal Navy tankers for the SUV IPT;
- 9,000 and 5,000 Litre Fuel Tankers for the Royal Air Force.

Quorum has also carried out System Safety Assessments for the following:

- MAN 39,000 Litre Tractor Unit and Fuel Tanker Trailer – Safety Assessment including Hazard Identification activities and production of the Hazard Log;
- Provided a MIL-STD-882D compliant Safety Assessment Report on the JCB 4CXM backhoe excavator for the Singapore Armed Forces;
- BROCO Underwater Cutting Equipment – Safety Assessment on Technical Publications and Training.

Training Course:

Quorum offers a 2 day course which provides delegates with an understanding of the UK MoD's System Safety Assurance requirements in accordance with Def Stan 00-56, the preferred methodology of Project Oriented Safety Management System (POSMS) and the associated Project Oriented Environmental Management System (POEMS).

The course is designed for Managers, Safety Engineers and Project Staff with little or no knowledge of MoD System Safety Assurance Requirements.

The course covers the following topics:

- The Concept and Purpose of a Safety Case;
- The need for a structured and systematic safety process;
- The Definitions of Basic Concepts and Terminology;
- Safety Management Principles & Systems;
- Typical Safety Lifecycles;
- Safety Processes and Tools;
- Legislative Requirements.

Additional Capability:

Quorum offers comprehensive capability in other areas such as Integrated Logistic Support (ILS), Reliability and Maintainability (R&M), Human Factors Integration, Risk Analysis, and Project Management. For any further information, please visit our website www.qlsl.com.