

SMERAS Support Services

Audit and Assessment Services

Delivering a comprehensive and structured review of aspects of Submarine safety – offering solutions, advice and assurance.



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QinetiQ offers a number of comprehensive SMERAS audit and assessment services. These unique services have been designed for navies, submarine constructors and related suppliers. Their purpose is to provide a structured review of aspects of submarine safety, highlight possible problem areas and where appropriate offer solutions, advice and assurance. These services are based on our extensive SMERAS knowledge, which combines our understanding of the interdependencies of the broad range of elements that comprise SMERAS systems coupled with our background in both equipment and physiological testing.

Full Escape, Rescue, Surface Abandonment and Survival Health Check

QinetiQ can assess your entire SMERAS capability in terms of procedures, equipment performance and provisioning, and the requirement on the system to meet physiological and ergonomic demands. Our aim is always to maximise survival in any distressed submarine (DISSUB) scenario as far as is reasonably practicable.

Across all areas of SMERAS, we offer audit, assessment and advice on:

- Procedures and plans
- Crew guidance
- Equipment
- Provision of resources
- Impact of human factors

We are able to advise the user on whether their own tests or test standards for SMERAS equipment are appropriate to ensure optimum safety for the DISSUB crew.

Guardbook Assessment and Validation

The crew of a distressed submarine need information and guidance in order to make the best decisions to maximise their opportunity for survival. Advice for the crew is typically contained in a set of instruction cards referred to as the Guardbook.

- System evaluation and assurance against defined standards
- Maximise crew survival
- Guardbook assessment and validation
- Review of entire Submarine Escape, Rescue, Abandonment & Survival capability
- Unique combined understanding of tower function and human physiology
- Validation against over twenty five years of relevant data

The Guardbook informs the crew of the immediate actions to perform in the event of a DISSUB scenario, how to assess, monitor and control the situation and how to plan for tower escape or rescue where appropriate. The Guardbook must be designed as a bespoke item for a given submarine class or individual submarine, since it will contain tables of waiting limits based on atmosphere maintainability which are specific to parameters such as crew size, internal dimension and specific equipment fit.

QinetiQ has extensive experience in the calculation and authoring of such tables, having created and supplied tables for all current classes of UK Royal Navy submarines and the Canadian VICTORIA class. QinetiQ also advised in the calculation of tables for the Australian Navy.

QinetiQ is able to give the best available advice on:

- Carbon dioxide waiting limits for level of carbon dioxide at which escapes must start
- Optimal selection of tower escape venting method based on crew size, escape compartment breathable volumes, hood inflation system air usage and probability of survival
- Decision making for whether to attempt escape or await rescue based on probability of decompression illness and probability of survival

QinetiQ can help any navy in both the design and creation of a new Guardbook or in the review of current Guardbooks to ensure the submarine crew receives the best and most up to date advice.

Bespoke Escape System Audit and Assessment

In addition to offering a full SMERAS system health check we also offer a detailed audit and assessment tailored to the specific needs of any navy, encompassing any or all of our other services.

About QinetiQ SMERAS Support Services

Submarine Escape, Rescue, Abandonment & Survival (SMERAS) Support Services

QinetiQ provides a range of tried and tested SMERAS Support Services that have been delivered to many of the world's submarine fleets, including fully instrumented tower trials (FITT) and Guardbook advice for the UK Royal Navy, Italian, Dutch, Norwegian and Canadian Navies. QinetiQ is the long established partner for SMERAS research, test and evaluation for the UK Royal Navy and are world leaders in research into physiological effects in the SMERAS environment.

QinetiQ SMERAS Support Services are supported by a unique range of world class facilities including the QinetiQ Hyperbaric Trials Unit. QinetiQ also provides a rapid response team of Submarine Escape Training Tank (SETT) qualified personnel, ready to go to sea and conduct trials at any time.

Most importantly QinetiQ delivers advice independent of any supplier.

QinetiQ SMERAS Support Services cover:

- Concept Design & Development
- Tower Escape Systems
- Surface Abandonment
- DISSUB Survival
- Submersible Rescue
- Audit and Assessment

Delivering world class SMERAS Support Services to Navies around the world

QinetiQ

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