

Product Safety & Operability

Operating a nuclear submarine is one of the most dangerous jobs in the world. Every time a submarine goes to sea the crew place their lives in the hands of the men and women who designed and built her. The product safety discipline is responsible for providing the customer with the assurance that the product has been designed and built to keep these men alive.

The product safety team are responsible for compiling the safety case for the submarine, a structured argument backed up with compelling evidence that provides the safety justification for the design.

The team undertake a wide variety of tasks throughout the life-cycle of the product from concept through to decommissioning including;

- Developing the Safety Management System for the platform
- Conducting comprehensive hazard identification and analysis for platform level systems, functions and physical aspects of the design
- Conduct in depth hazard analysis to determine risk for each of the hazards implement measures to minimise this risk to a level that is As Low As Reasonably Practicable (ALARP)
- Conduct analysis to determine where the costs of lowering risks far outweigh the benefits. This is key to demonstrating that a risk is ALARP and therefore that the company have followed due process and hence compliance with the legislation, at the right cost
- Consider the human element to incorporate the probability of Human Error in accident sequences and risk analyses
- Providing the analysis and justification for the environmental impact of the design.

In addition the team incorporates the operability team, who are responsible for ensuring that the whole boat can be operated effectively by the crew. This includes consideration of the ergonomics of the design during normal operation and in damage control situations.

The role would be well suited to any graduate from a technical background (any engineering discipline, mathematics, physics or similar) and some of the activities a graduate can be expected to be involved in are;

- Quantitative and Qualitative risk analysis
- Hazard identification/Hazard analysis
- Communication with many other disciplines
- Developing formal safety documentation to current standards
- Assist in managing and maintaining the audit trail to provide the traceability that is key to the success of the safety case
- Assisting in operability assessments on boats currently in build.

As with other engineering disciplines graduates are encouraged to work towards professional accreditation and chartered engineer (CEng) status with an appropriate body. Submarines Graduate Programme is accredited by IMechE, IET, IMarEST, RINA, IoP & IoM3. Opportunities for career progression are strong and the discipline is relatively new within the defence industry leading to a range of opportunities for development.

For a graduate to consider working in Product Safety; the candidate would have an engineering, science or mathematical degree with a minimum 2:1 result.