

## Case Study 02

### Independent Technical Assurance and Peer Review

#### Project Background

The Dreadnought Class SSBN programme represents one of the UK's most complex and strategically critical defence programmes, delivering a new generation of nuclear-powered ballistic missile submarines to sustain the Continuous at Sea Deterrent (CASD).

As the platform design matured towards Detailed Design and Integration Review, the Submarine Delivery Agency (SDA) required independent assurance of the Whole Boat Safety Case (WBSC) to support regulatory confidence and programme progression.



Naval Solutions staff were appointed to lead this assurance activity, providing Independent Technical Assessment (ITA) and Independent Peer Review (IPR) of the WBSC. The scope included assessment of the deterministic and probabilistic safety case, Safety Functional Requirements (SFRs) and the integrity of the safety arguments across the whole boat.

#### Approach

Our approach combined structured document reviews, deep-dive technical assessments, and system-level architecture analysis, which traced the safety case 'golden thread', from top-level safety goals, through to Design Safety Justification (DSJ) reports and system / component level assessment. We established clear review criteria and maturity assessment benchmarks, aligned with DSA02-DMR, DEF STAN 00-56, Defence Maritime Regulator (DMR), Naval Authority (NA) and Defence Nuclear Safety Regulator (DNSR) expectations, ensuring consistency and traceability across all safety case elements.

We co-ordinated a multi-disciplinary team of approximately ten engineers – covering platform safety, environmental protection, hazardous materials, shock and systems engineering – to deliver a coherent and independent reviews of the deterministic safety case and SFRs, ensuring that the safety argument was robust, evidence-based and aligned with modern standards principles. This included the generation of detailed Document Review Forms (DRFs),



consolidated assurance reports and formal presentations, for the Project Safety Committee (PSC), to demonstrate achievement of the required maturity level.

Throughout the engagement we maintained close collaboration with the SDA, Integrated Project Management Team, Joint Design Authority, and industry partners, ensuring that assurance activities were embedded within the programme's gated design lifecycle.

## Scope and Contributions

Our work provided assurance at Preliminary Design Review, Detailed System Design Review, and Integration Review stages, offering independent scrutiny of the deterministic safety case and SFRs to confirm their completeness, credibility and alignment with ALARP principles.

Our structured approach ensured that assurance activities were embedded within the programme's gated lifecycle and that safety case development was both technically sound and strategically aligned.

## Outcomes

Naval Solutions' leadership in the WBSC assurance effort delivered critical value to the Dreadnought programme. Our independent assessments enabled the PSC to endorse key safety case submissions with confidence, supporting regulatory engagement and programme progression. The structured review process identified and resolved key issues early, reducing the risk of rework and delay. Our work strengthened the traceability and maturity of the safety argument, ensuring that the safety case met DMR, NA and DNSR expectations and supported the safe delivery of the platform.

### Naval Solutions

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We offer a full suite of consultancy and engineering services tailored to the complex demands of modern maritime operations. With a relentless commitment to excellence, paired with a deep understanding of our clients' operational environments, our solutions enhance capability, ensure safety and drive operational success at sea and beyond.



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