

Nuclear safety and assurance



At Frazer-Nash, our consultants are applying their expertise and know-how to develop, enhance and protect our clients' critical assets, systems and processes.

Many of the world's leading companies and organisations use us to solve their systems and engineering problems. We work for clients across a range of sectors including aerospace, transport, nuclear, marine, defence, renewable energy and oil and gas. The depth of our knowledge base means we can transfer the skills, experience and best practice from one area to benefit our clients in other fields.

Our expertise comes not from a single engineering perspective, but from detailed knowledge of a broad range of disciplines and their application across different markets. Through our Systems Approach we combine our extensive skill set with our ability to think creatively. We add value to each stage of a project and continue to do so throughout the project's life.

“ Our Systems Approach helps us respond to our clients' challenges. We work with them to understand the whole range of financial, operational, organisational, people and other issues that surround their technical needs. And we use this understanding to deliver demonstrable business and technical value. ”

Listening to our clients and understanding their business needs is key to our success. We want our clients to be delighted by working with a company that genuinely understands their business, the challenges they face and what's really important to them – a high-quality result, complete reliability, value for money and a clear competitive edge.

Nuclear safety and assurance capability

Our nuclear safety and assurance teams have a proven track record in the provision of safety case and assurance services.

Our experience includes:

- Production of safety case strategy papers
- Production of top-tier safety reports (PSR, PCSR, PCmSR, PICSAR, PACSR, POSR, OSR)
- Production of subordinate/supporting safety assessment and evidence-layer documents, including:
 - HAZID/HAZOP reports
 - Radiological/criticality HAZAN reports
 - Conventional safety assessments/HAZANs
 - Internal/external hazard assessments
 - Fault schedules
 - Support for the production of engineering substantiation reports (ESR, DSR, DAR, DJR)
 - HAZID/HAZOP review and production of hazard logs
 - ALARP review/workshop reports
- Formulation of safety principles and safety assessment methodologies
- Peer review, INSA, and independent technical review
- Planning/executing periodic safety reviews
- Preparation of shielding assessments
- Preparation of CIDAS omission cases
- Support to site licence compliance activities for, both new build and existing sites, including developing compliance statements and arrangements and the preparation and review of management prospectuses
- Radiological protection advice
- Production of radiological prior risk assessments and local rules
- Engineering substantiation and all supporting engineering analysis techniques

- Experience in production of safety cases and other assurance activities for reactor sites, nuclear processing, storage facilities, dockyards and submarines
- Delivery of integrated design and safety case projects
- Environmental permitting and compliance for nuclear licensed sites
- Best available techniques (BAT) assessments
- Internal/external hazards characterisation and assessment

Assessment techniques

We have significant experience in the use of the following safety and assurance assessment techniques and methodologies:

- Hazard identification:
 - HAZOP, SWIFT, review of OPEX
- Fault grouping/screening
- Hazard analysis:
 - Radiological consequence assessments (using hand calculation techniques or codes such as MicroShield®)
 - Novel and standard non-nuclear hazard assessment
 - Deterministic safety assessment
 - Probabilistic safety assessment (including FTA and ETA)
 - SSC/SFR classification and categorisation
- Criticality safety assessment:
 - Double contingency principle (DCP)
 - Criticality DBAA
- Human factors assessment:
 - HEP assessment (e.g. HEART/THERP)
 - Operator dependency modelling
- ALARP:
 - Option studies
 - Qualitative assessment
 - Quantitative assessment (CBA)
 - Reviews/workshops

Our Systems Approach

Sometimes, a defined approach to a specific problem is all that is required. But more often than not, engineering projects are framed by the wider context in which they will be applied. So whatever the project we take a holistic view.

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Our people

The best results come from the best people. Our employees are talented, original thinkers who exchange ideas, share their knowledge and collaborate enthusiastically. We only employ those who combine outstanding technical expertise with commercial awareness. We look for people of openness and integrity who can work well with their colleagues, engage with our customers and get to the heart of the problem.

“ Our understanding of the wider context in which a safety case/assurance project resides, coupled with extensive experience and expertise in safety- and assurance-related activities, enables us to identify and advise on an optimum assurance strategy. This ensures that we can offer you the most appropriate solution. ”

About us

Turnover: £71 million (2014/2015)

Number of employees: Over 650

Office locations:

United Kingdom

Bristol, Burton-on-Trent, Dorchester, Dorking, Glasgow, Gloucester, Plymouth, Warrington

Australia

Adelaide, Canberra, Melbourne

Our markets and expertise: aerospace, transport, nuclear, marine, defence, renewable energy and oil and gas, security and resilience, electronic and electrical engineering