

Safety Case

Under the terms of the Nuclear Installations Act (1965) holders of Nuclear Site Licences are legally bound by Site Licence Condition No.14 to, “justify safety during the design, construction, commissioning, operation and decommissioning phases of a facility life cycle”. Justification of safety is made via a ‘Safety Case’, which must be comprehensive and generate a suitable safe operating envelope defining the acceptable limits within which operations can take place.

The writing of Nuclear Safety cases is a skilled discipline, requiring an ability to understand the normal operating philosophy for a facility and then the potential deviations from the normal operating intent.

Safety Case services Atkins can offer are:

- **Safety Case Preparation**

Atkins has the ability to deliver safety cases and wide ranging experience in an integrated manner as part of multi-disciplinary projects, to deliver cost-effective yet safe solutions.

Atkins has undertaken safety cases covering all stages of a project from concept design through to decommissioning. This has included:

- Full safety cases for operational facilities;
- Staged safety case submissions for new build (including PSR, PCSR, PCmSR, and POSR);
- Support to Periodic Reviews of Safety (LC15);
- Modification safety cases; and
- Decommissioning safety cases.

In support of the above Atkins have a number of experienced HAZOP chairpersons and secretaries, as well as technical staff who are fully conversant with the requirements of the HAZOP process.

- **Qualitative and Quantitative Assessments**

With the production of modern standards safety cases Atkins is able to provide expert support in all areas of hazard analysis including:

- Frequency and consequence assessment;
- Design Basis Analysis;
- Probabilistic Risk Assessment and demonstration of ALARP; and
- Reconciliation of HAZAN's/Engineering Schedule via ALARP reviews.



UKAEA Dounreay



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- **Radiation Shielding Design and Dose Assessment**

- Derive radiation source terms based upon the interpretation of facility measurements or from isotopic process flow sheet data (Shielding Design Basis);
- Production of Radiological Classification of Areas schemes;
- Determine the bulk shielding requirements, e.g. the thickness of cell walls, shield doors, flasks, etc. by employing industry standard shielding codes RANKERN, MCNP or MICROSIELD; and
- Comprehensive Shielding Design Assessment documentation in support of the facility safety case.

- **Emergency Arrangements & Planning**

Atkins has developed a variety of emergency plans for site operators and was recently involved in the review of off-site emergency plans for a number of sites (including both civil and naval) on behalf of the NII.

- **Probabilistic Safety Assessment**

- Fault/Event tree analysis;
- Failure modes and effects analysis;
- Cause-consequence analysis; and
- Human reliability assessments.

- **Other Services**

- Safety Management Systems (including License Compliance support);
- Fire Safety;
- Human Factors Engineering; and
- Environmental and Waste Management Support.



BNFL Sellafield