

Specification for

**A total quality assurance
programme for nuclear
installations**

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Committees responsible for this British Standard

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- AEA Technology
- BEAMA Ltd.
- British Nuclear Fuels Plc
- British Nuclear Industry Forum
- Health and Safety Executive
- Institution of Nuclear Engineers
- Institution of Quality Assurance
- Ministry of Defence
- Power Generation Contractors' Association (PGCA (BEAMA Ltd.))

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Foreword

This British Standard has been prepared by Technical Committee NCE/10. This revised edition supersedes BS 5882 : 1990, which is withdrawn, and brings the specification into alignment with BS EN ISO 9001 : 1994. These changes reflect experience in the use of the specification and updates in the light of modern practice.

It attempts to establish compatibility of quality assurance principles between existing documents such as annex B of USA Code of Federal Regulations 10 CFR 50 [1], American National Standards Institute (ANSI/ASME) NQA – 1 [2] and the International Atomic Energy Agency Code of Practice 50-C-QA [3] [4].

It sets out principles for the establishment and implementation by the owner and the owner's agents of a total quality assurance programme for a complete nuclear installation, and for each of the constituent areas of activity relevant to an operating installation. It covers all the stages of activity such as design, procurement, manufacture, construction, commissioning, operation, modification and decommissioning of structures, systems and components of nuclear installations.

The proper establishment and implementation of a total quality assurance programme from the design through to decommissioning of a nuclear installation is necessary to provide adequate assurance of quality to meet statutory requirements imposed by regulatory authorities. In order to achieve this objective it is important to recognize that within the total quality assurance programme adopted, the basic responsibility for quality achievement in the performance of a particular task (for example, in design, in manufacturing, in commissioning, in operation) belongs with the individual or individuals assigned the task, as well as with those seeking to ensure by means of verification that it has been achieved. It is emphasized that nuclear installations will not be designed, manufactured, constructed and operated successfully solely as a consequence of the preparation of a quality assurance programme since it is the application of the quality assurance programme that is important.

Quality assurance is an essential aspect of good management. Good management contributes to the achievement of quality through thorough analysis of the task to be performed, the identification of the skills required, the selection and training of appropriate personnel, the use of appropriate equipment, the creation of a satisfactory environment in which activity can be performed and a recognition of the responsibility of the individual who is to perform the task. A quality assurance programme provides for a disciplined approach to all activities affecting quality including, where appropriate, verification that each task has been satisfactorily performed, and production of documentary evidence to demonstrate that the required quality has been achieved.

Guidance on the various topics covered by this standard can be found in the Safety Guides to the International Atomic Energy Agency Code of Practice 50-C-QA [3].

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Specification

1 Scope

This British Standard specifies principles for the establishment and implementation of quality assurance programmes:

- a) during all stages of:
 - design;
 - procurement;
 - manufacture;
 - construction;
 - commissioning;
 - operation;
 - modification, and;
 - decommissioning;
- b) of structures, systems and components of nuclear installations including:
 - power plants;
 - fuel fabrication plants;
 - fuel processing plants;
 - spent fuel storage facilities;
 - fuel re-processing plants;
 - waste treatment;
 - packaging;
 - handling;
 - storage;
 - disposal facilities, and;
 - installations involved in the production of radioactive isotopes.

These principles apply to activities affecting the quality of items, including:

- designing;
- purchasing;
- manufacturing;
- handling;
- shipping;
- storage;
- cleaning;
- erecting;
- installing;
- testing;
- commissioning;
- operating;
- inspecting;
- repairing;
- modifying and, eventually;
- decommissioning.

NOTE. The manner in which the principles described in this standard will be implemented in the different organizations involved in the various stages of a specific project, contract or installation will depend on regulatory and contractual requirements, the form of management applied and the nature and scope of the work to be performed by the different organizations.

2 Responsibility

It is the responsibility of the owner of the nuclear installation to ensure that a total quality assurance programme for the installation is established and executed in a manner consistent with the provisions of this standard. The owner is permitted to delegate to other organizations or to specialists the work of establishing and executing a quality assurance programme, or any part thereof, but shall retain responsibility for overall programme effectiveness. In no way shall a total programme operate to diminish the responsibility of an individual organization or participant for the quality of items or services furnished or for the activities executed.

3 References

3.1 Normative references

This British Standard incorporates, by reference, provisions from specific editions of other publications. These normative references are cited at the appropriate points in the text and the publications are listed on the inside back cover. Subsequent amendments to, or revisions of, any of these publications apply to this British Standard only when incorporated in it by updating or revision.

3.2 Informative references

This British Standard refers to other publications that provide information or guidance. Editions of these publications current at the time of issue of this standard are listed on the inside back cover, but reference should be made to the latest edition.

4 Definitions

For the purposes of this British Standard the definitions given in BS EN ISO 8402 : 1995 and BS 4778 : Part 2 : 1991 apply as follows, except that in this standard the term 'item' replaces 'entity':

4.1 code

A standard which satisfies a regulatory body.

4.2 commissioning

The initial testing and start-up process by which a nuclear installation is put into operation.

4.3 decommissioning

The permanent retirement from service of a nuclear installation or part thereof and the work which follows in bringing it to a definitive condition.

4.4 documentation

Any recorded or pictorial information describing, defining, specifying, reporting or certifying activities, requirements, procedures or results.

4.5 item

An all-inclusive term covering structures, systems, components, parts or materials.

